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Closeout Report for IHSS Group 700-6 IHSS 700-137, Buildings 712/713 Cooling Tower Blowdown, and IHSS 700-139.1(S) Caustic/Acid Spills Hydroxide Tank Area

October 2004

IA-A-002397

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Closeout Report
for IHSS Group 700-6
IHSS 700-137, Buildings 712/713
Cooling Tower Blowdown,
and IHSS 700-139.1(S)
Caustic/Acid Spills Hydroxide Tank Area

Approval received from the Colorado Department of Public Health and Environment
September 29, 2004.
Approval letter contained in the Administrative Record.

October 2004

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Complete Data Set Compact Disc – Accelerated Action Data

ACRONYMS

AAESE	Accelerated Action Ecological Screening Process
AL	action level
AR	Administrative Record
ASD	Analytical Services Division
BGM+2SD	background mean plus two standard deviations
bgs	below ground surface
CAD/ROD	Corrective Action Decision/Record of Decision
CD	compact disc
CAS	Chemical Abstracts Service
CDPHE	Colorado Department of Public Health and Environment
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CHWA	Colorado Hazardous Waste Act
CMS/FS	Corrective Measures Study/Feasibility Study
COC	contaminant of concern
CRA	Comprehensive Risk Assessment
DOE	U.S. Department of Energy
DQA	Data Quality Assessment
DQO	data quality objective
EMC	Elevated Measurements Comparison
EPA	U.S. Environmental Protection Agency
ER	Environmental Restoration
ER RSOP	Environmental Restoration RFCA Standard Operating Protocol for Routine Soil Remediation
ft	feet
gpm	gallons per minute
HPGe	high-purity germanium
HRR	Historical Release Report
IA	Industrial Area
IASAP	Industrial Area Sampling and Analysis Plan
IHSS	Individual Hazardous Substance Site
IP	Industrial Package
J	estimated (validation)
J1	estimated (verification)
JB	estimated; possible laboratory contamination (validation)
JB1	estimated; possible laboratory contamination (verification)
K-H	Kaiser-Hill Company, L.L.C.
KOH	potassium hydroxide
LCS	laboratory control sample
µg/kg	micrograms per kilogram
MDL	method detection limit
mg/kg	milligrams per kilogram
MS	matrix spike

ACRONYMS

MSD	matrix spike duplicate
NA	not applicable
NFAA	No Further Accelerated Action
NLR	no longer representative
OPWL	Original Process Waste Lines
OU	Operable Unit
PAH	polyaromatic hydrocarbon
PARCCS	precision, accuracy, representativeness, completeness, comparability, and sensitivity
pCi/g	picocuries per gram
POE	Point of evaluation
QC	quality control
R	rejected (validation)
R1	rejected (verification)
RAO	remedial action objective
RCRA	Resource Conservation and Recovery Act
RFCA	Rocky Flats Cleanup Agreement
RFETS or Site	Rocky Flats Environmental Technology Site
RFI/RI	RCRA Facility Investigation/Remedial Investigation
RIN	report identification number
RL	reporting limit
RPD	relative percent difference
RSOP	RFCA Standard Operating Protocol
SAP	Sampling and Analysis Plan
SEP	Solar Evaporation Ponds
SOR	sum of ratios
SSRS	Subsurface Soil Risk Screen
SVOC	semivolatile organic compound
SWD	Soil Water Database
TDS	total dissolved solids
V&V	verification and validation
VOC	volatile organic compound
WEMS	Waste and Environmental Management System
WRW	wildlife refuge worker

EXECUTIVE SUMMARY

This Closeout Report summarizes accelerated action activities conducted at Individual Hazardous Substance Site (IHSS) Group 700-6, which consists of IHSS 700-137, the Buildings 712/713 Cooling Tower Blowdown, and IHSS 700-139.1(S), the Caustic/Acid Spills Hydroxide Tank Area. Accelerated action activities were planned and executed in accordance with the Industrial Area (IA) Sampling and Analysis Plan (SAP) (IASAP) (DOE 2001) and the Environmental Restoration (ER) Rocky Flats Cleanup Agreement (RFCA) Standard Operating Protocol (RSOP) for Routine Soil Remediation Modification 1 (ER RSOP) (DOE 2003a). Accelerated action characterization activities were conducted in accordance with IASAP Addendum #IA-03-18 (DOE 2003b). Accelerated action soil removal activities were conducted in accordance with
ER RSOP Notification #04-17 (DOE 2004a).

Accelerated action activities were conducted between April and August, 2004, and included soil characterization and removal activities. Historical and accelerated action characterization data indicated that contaminant concentrations in soil greater than wildlife refuge worker (WRW) action levels (ALs) were limited to three analytes (arsenic, benzo(a)pyrene, and chromium) at nine soil sampling locations [six in IHSS 700-137 and three in IHSS 700-139.1(S)]. At IHSS 700-137, WRW AL exceedances of arsenic and chromium occurred in surface soil, and benzo(a)pyrene and chromium occurred in subsurface soil. At IHSS 700-139.1(S), WRW AL exceedances of benzo(a)pyrene exceedances occurred in surface and subsurface soil.

Based on application of the hot spot methodology (DOE 2001), and the Subsurface Soil Risk Screen (SSRS) (DOE et al. 2003) conducted for ER RSOP Notification #04-17 (DOE 2004a), only the WRW AL exceedances of arsenic in surface soil at two sampling locations, CG47-025 and SS801993, required removal. Surface soil was excavated at these sampling locations. Metal concentrations in the confirmation samples were less than WRW ALs, except arsenic which was detected in a single sample at a concentration of 29 milligrams per kilogram (mg/kg), slightly above the WRW AL of 22.2 mg/kg.

Residual contaminant concentrations greater than reporting levels (RLs) or background means plus two standard deviations (BGM+2SDs) remain in surface and subsurface soil located throughout IHSS Group 700-6. Residual contaminant concentrations greater than WRW ALs are limited to three analytes (arsenic, benzo(a)pyrene, and chromium) and soil at seven characterization sampling locations and one confirmation sampling location. Arsenic concentrations greater than the WRW AL remain in surface soil [0 to 0.5 feet (ft) below ground surface (bgs)] and subsurface soil (0 to 1 ft bgs), chromium in subsurface (0.5-0.8 ft bgs) soil, and benzo(a)pyrene in surface (0-0.5 ft bgs) and subsurface (0.5-2.5 ft bgs and 8-8.5 ft bgs) soil. Based on application of the hot spot methodology and SSRS, soil at these locations does not require remedial action

No Further Accelerated Action (NFAA) is warranted for soil at the IHSS Group 700-6 sites. All ER RSOP remedial action objectives (RAOs) (DOE 2003a) and accelerated action goals established for remediation of the IHSS Group 700-6 soil were achieved. The soil removal activities conducted at IHSS Group 700-6 contributed to the protection of human health and the environment by removing potential sources of contamination. Best management practices

(BMPs) were used during removal activities to minimize the potential spread of contamination. The removal activities minimized the need for short- and long-term management actions.

In addition, the post-remediation SSRS and stewardship evaluation conducted indicated no additional accelerated actions are required and NFAA is warranted for IHSS Group 700-6. Long-term stewardship actions include restricting site access, controlling soil excavation, and prohibiting groundwater pumping. No additional environmental engineering or monitoring activities are recommended.

1.0 INTRODUCTION

This Closeout Report documents the accelerated action activities conducted at Individual Hazardous Substance Site (IHSS) Group 700-6, located at the U.S. Department of Energy's (DOE's) Rocky Flats Environmental Technology Site (RFETS or Site) in Golden, Colorado, and demonstrates attainment of the cleanup goals required for closure of IHSS Group 700-6. Figure 1 shows the general location of IHSS Group 700-6 at RFETS. The IHSS Group 700-6 sites consist of IHSS 700-137, Buildings 712/713 Cooling Tower Blowdown, and IHSS 700-139.1(S), the Caustic/Acid Spills Hydroxide Tank Area. Figure 2 is a detailed location map of IHSS Group 700-6.

The accelerated action activities conducted at IHSS Group 700-6 were planned and conducted in accordance with the Industrial Area (IA) Sampling and Analysis Plan (SAP) (IASAP) (DOE 2001) and the Environmental Restoration (ER) Rocky Flats Cleanup Agreement (RFCA) Standard Operating Protocol (RSOP) for Routine Soil Remediation (ER RSOP) Modification 1 (DOE 2003a). Accelerated action characterization activities were conducted in accordance with IASAP Addendum #IA-03-18 (DOE 2003b). Accelerated action soil removal activities were conducted in accordance with ER RSOP Notification #04-17 (DOE 2004a).

This IHSS Group 700-6 Closeout Report includes the following:

- Historical information;
- Accelerated action characterization deviations from IASAP Addendum #IA-03-18 (DOE 2003b) sampling specifications;
- Accelerated action characterization data presented in tables and shown on maps;
- Sums of ratios (SORs) and summary statistics for the accelerated action characterization data;
- Evaluation of historical and accelerated action characterization data greater than wildlife refuge worker (WRW) action levels (ALs);
- Remedial action objectives (RAOs) and accelerated action goals;
- Description of accelerated action activities;
- Confirmation sampling results presented in a table;
- Map of the remediated area including boundaries and confirmation sampling results;
- Subsurface Soil Risk Screen (SSRS);
- Stewardship evaluation;
- Deviations from the ER RSOP;
- Map of residual soil contamination;
- Disposition of waste and site reclamation;
- Table of no longer representative (NLR) sampling locations;

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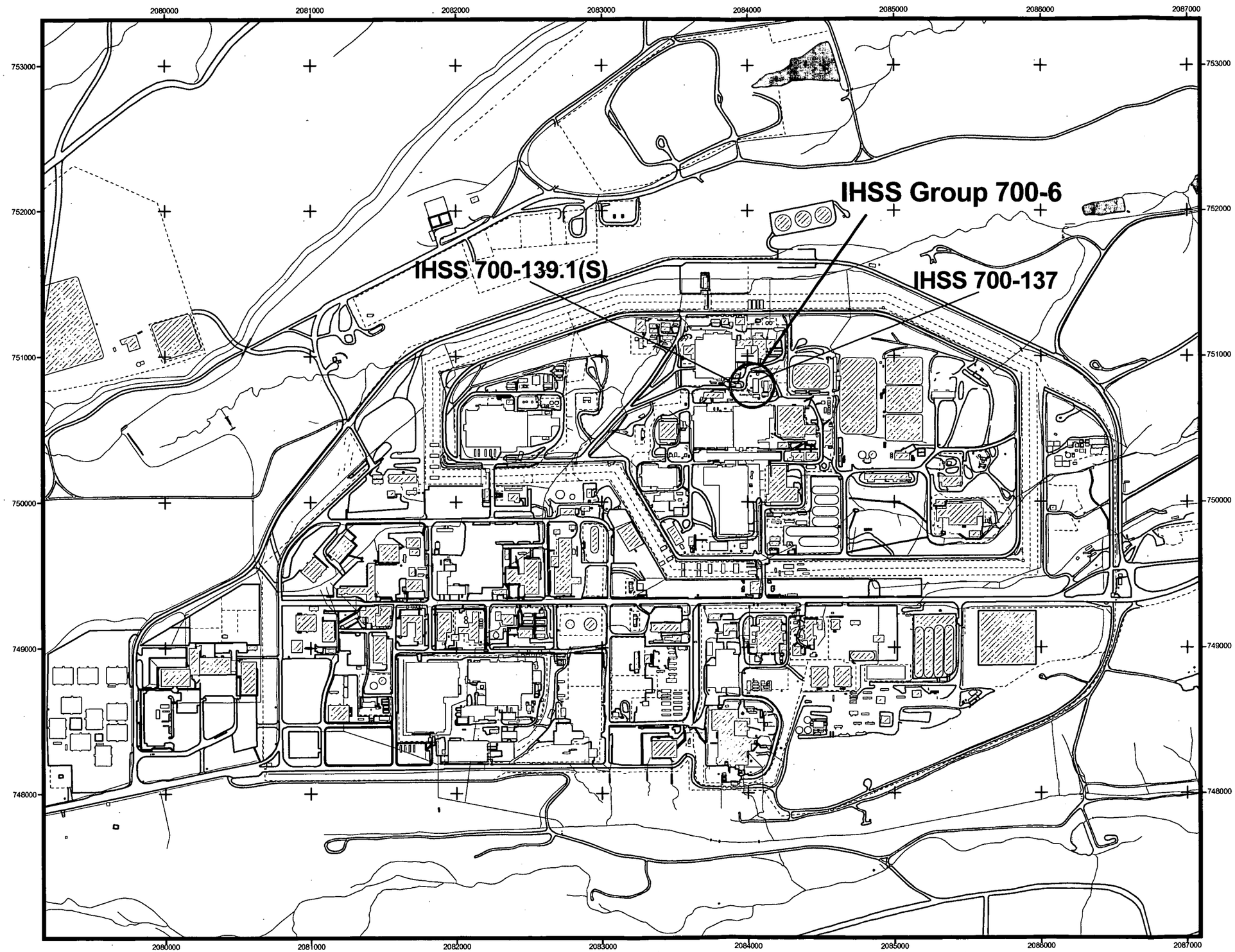

Figure 1
IHSS Group 700-6
General Location Map

Key

- IHSS
- Standing building
- Demolished building
- Pond
- Stream
- Paved road
- Dirt road
- Fence

N

Scale = 1:8,000

500 0 500 Feet

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared By: RADMS

Prepared For: KAISER•HILL COMPANY

Date: 10.20.2004

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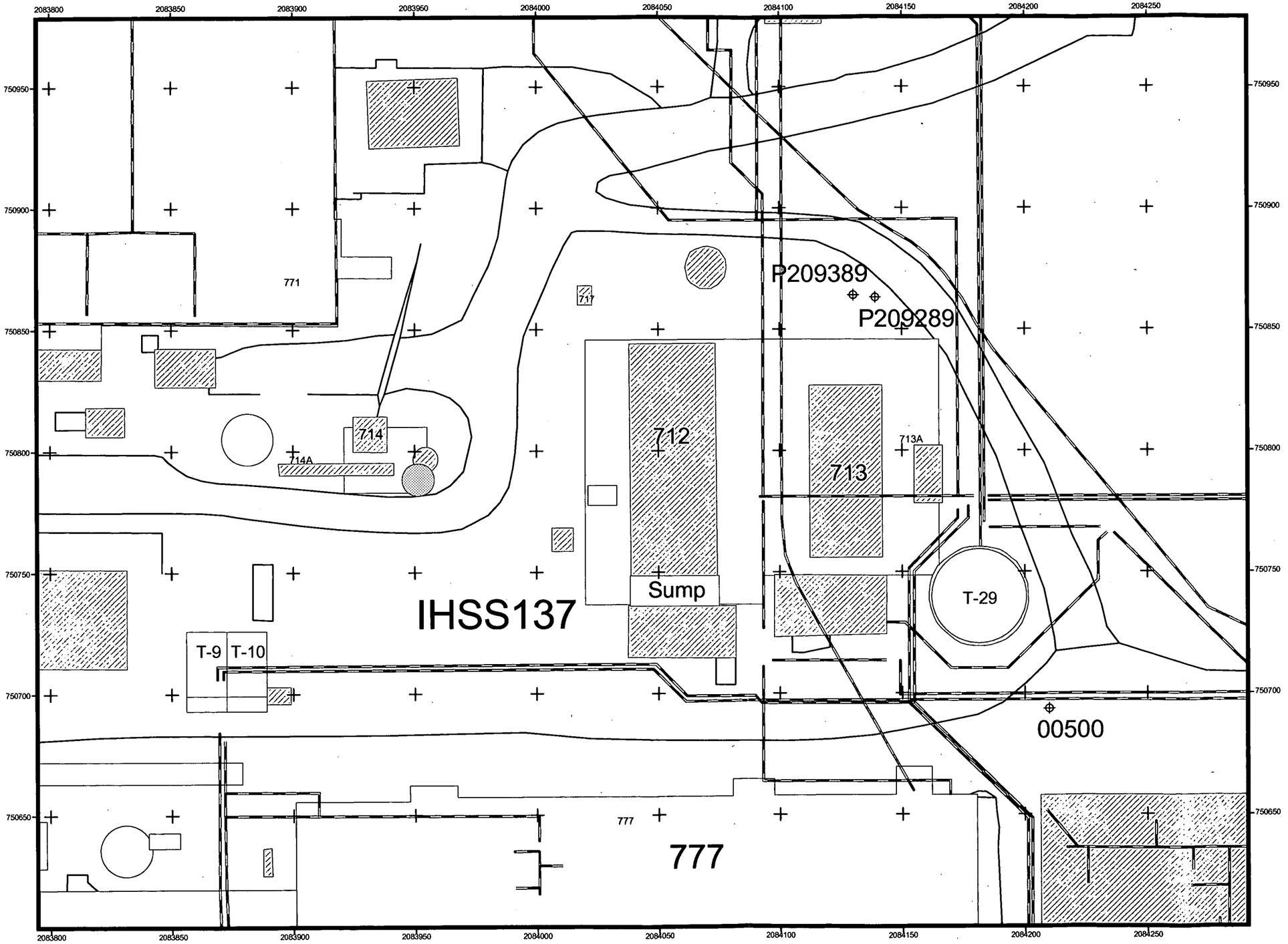
Figure 2
IHSS Group 700-6
Detailed Site Map



KEY

- IHSS
- PAC
- Standing building
- Demolished building
- Tank
- Paved road
- NPWL
- OPWL
- Groundwater Well

N

10 0 10 20 30 Feet

Scale = 1:500

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: RADMS

Prepared for: KAISER•HILL COMPANY

Date: 9.29.2004

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- Data Quality Assessment (DQA);
- Conclusions and reasons supporting a No Further Accelerated Action (NFAA) determination for IHSS Group 700-6;
- References;
- Correspondence and contact records;
- Photographs of accelerated action activities; and
- A compact disc (CD) containing the accelerated action data set for the project. The data are divided into two files, one containing real data and one containing quality control (QC) data, and are presented in a standardized format.

Approval of this Closeout Report constitutes regulatory agency concurrence that IHSS Group 700-6 is an NFAA site. This information and NFAA determination will be documented in the 2004 Annual Update of the Historical Release Report (HRR). This Closeout Report and associated documentation will be retained in the RFETS Administrative Record (AR).

2.0 SITE CHARACTERIZATION

The IHSS Group 700-6 site characterization is based on limited historical information (site histories and historical soil data) and accelerated action characterization soil data. Figure 3 presents historical soil data results greater than method detection limits (MDLs) or background means plus two standard deviations (BGM+2SDs).

2.1 Historical Information

Historical information on IHSS Group 700-6 is summarized below. Additional historical information can be found in the HRRs (DOE 1992-2003), IASAP (DOE 2001), and IA Data Summary Report (DOE 2000).

IHSS 700-137, the Buildings 712/713 Cooling Tower Blow Down

IHSS 700-137 is associated with two cooling towers: Building 712 and Building 713. The two cooling towers serviced Buildings 776 and 777, and were situated next to each other in an area located between Buildings 774 and 777. IHSS 700-137 was initially 50 ft by 150 ft. Because of information obtained during development of the Phase I Resource Conservation and Recovery Act (RCRA) Facility Investigation/Remedial Investigation (RFI/RI) Work Plan for Operable Unit (OU) 8, 700 Area (DOE 1994), IHSS 700-137 site boundaries were expanded to include the area adjacent to and surrounding the cooling towers, an area located approximately 10 ft beyond the foundation of Buildings 712 and 713 (DOE 1994).

Building 712 was constructed in 1962 to service Buildings 776 and 777, and Building 713 was constructed in 1966 to provide additional capacity. Underground laundry and process waste lines were present in the area where Building 713 was constructed. Original Process Waste Lines (OPWL) associated with IHSS 137 have been left in place and grouted (P-28, P-29, P-34.1, P-36, P-37, P-41, P-61) or removed. Buildings 702 and 703 were pump houses for Buildings 712 and

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0HIS TARGET SHEET REPRESENTS AN OVER-SIZED MAP / PLATE FOR THIS DOCUMENT:
(Ref: 04-RF-01088; KLW-031-04)

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Figure 3:

IHSS Group 700-6 Historical Soil Data Greater than MDLs/RLs or BGM+2SDs

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October 14, 2004

CERCLA Administrative Record Document, IA-A-002397

U.S. DEPARTEMENT OF ENERGY
ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

GOLDEN, COLORADO

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713, respectively. The cooling tower sump is located between Buildings 712 and 702. Building 713 was operated during the winter, and Building 712 was operated during the summer because it had a greater cooling capacity (DOE 1992).

In the past utility workers cleaned out the sump and scraped slime off the cooling tower slats at each tower. Material removed during these activities was disposed of on the ground immediately adjacent to the cooling towers (DOE 1992).

Wind and rain damaged the cooling towers and Building 712 was re-sided at least once. In 1991, Building 712 had open panel siding and Building 713 had open-slat siding. The slat siding allowed some water to spray out of the tower onto the surrounding ground surface. On an August 20, 1992 visit, the ground east of Building 713 contained puddles from overspraying. Building 712 was not operational on that day and had been inoperative for quite some time (DOE 1994).

Filtered, untreated raw water from the on-site raw water reservoir was generally used in the towers. Chemicals were added to the water to prevent the biological growth and chemical processes (corrosion and scaling) that degrade system performance by fouling heat-transfer surfaces. Prior to 1976, chromates and sodium silicate were added to cooling tower water to act as corrosion inhibitors (DOE 1994).

Water was removed from the cooling tower system by blowdown and drift. Drift water was released to the atmosphere and sprayed to the ground surrounding the tower. Tower water was periodically blown down to maintain a specified range of total dissolved solids (TDS) (DOE 1994). Prior to 1970, it was routine for the cooling towers to blow down effluent onto the soil outside the buildings where it evaporated, infiltrated into the soil, or flowed into the storm water culverts and pipes and was directed to North Walnut Creek. Although detailed records were not found, it was believed that since 1974, the blowdown water from Buildings 712 and 713 was piped to the sanitary sewers (DOE 1994).

The HRR (DOE 1992) states that the cooling tower blowdown pipes exited the towers on the southern sides, and that these pipes were the most probable source of blowdown water contamination around the cooling towers. The Plutonium Area Underground Piping Plan, Section & Detail (RF-14264-9; As-Built, 6/30/67) shows the blowdown pipes for Building 713 exiting the tower on the western side. As shown, these pipes connect to a 4-inch storm sewer that encircles the tower and discharges at an outfall northeast of the cooling tower, near the southeast corner of Building 774. The effluent from this storm sewer drained into North Walnut Creek. It is inconclusive as to whether the outfall was ever sampled (DOE 1994).

In September 1990, RCRA personnel checked a leaking cooling tower behind Building 777. The cooling tower was reportedly releasing approximately 20 to 40 gallons per minute (gpm) of water. It is not known how long the cooling tower had been leaking prior to the RCRA response. Releases were attributed to leaks in the corroded sides of the cooling towers. There is no record of cleanup or sample collection in the HRR or the OU 8 Phase I RFI/RI Work Plan (DOE 1994).

In 1979, a Sitewide project that included Buildings 712 and 713, was implemented to upgrade cooling towers. Media associated with the towers (for example, wood siding and soil) were

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sampled and analyzed for waste classification. The results of the sampling indicated that none of the media qualified as toxic or hazardous material based on U.S. Environmental Protection Agency (EPA) guidance and extraction tests. As a result, media removed for the upgrades were disposed in the on-site landfill (DOE 1994).

Surface soil samples were collected and analyzed for radionuclides, metals, semivolatile organic compounds (SVOCs), and volatile organic compounds (VOCs) during the OU 8 RFI/RI. The SVOCs benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, dibenz(a,h)anthracene, and indeno(1,2,3-cd)pyrene were detected. Concentrations of the following metals and radionuclides exceeded background values: antimony, barium, cadmium, calcium, copper, iron, molybdenum, silver, sodium, strontium, tin, zinc, uranium-233/234, uranium-235, and uranium-238 (DOE 2001). Concentrations of arsenic, chromium, and benzo(a)pyrene were greater than WRW ALs. Historical analytical data for soil at this site are available in the IA Data Summary Report (DOE 2000).

IHSS 700-139.1(S) the Caustic/Acid Spills Hydroxide Tank Area

IHSS 700-139.1(S) is associated with a 5,400-gallon aboveground potassium hydroxide (KOH) storage tank, located southeast of Building 771. The HRR (DOE 1992) describes IHSS 700-139.1(S) as an "L-shaped" area 25 ft wide by 140 ft long that surrounds the KOH tank and the line that transfers the hydroxide into Building 771. Because of information obtained during the development of the OU 8 Phase I RFI/RI Work Plan (DOE 1994), IHSS 700-139.1(S) site boundaries were reduced to include only the 35- by 25-foot area adjacent to and surrounding the tank (DOE 1994).

The tank was installed between 1955 and 1964. The tank consists of welded construction and rests on a concrete base surrounded by a small earthen berm that was constructed before 1973 (DOE 1994). The IHSS is unpaved except for the concrete pad, and is bordered by paved roads on the northern, eastern, and southern sides, and by Building 714 on the western side.

There were several spills and releases of KOH during routine filling operations, as described below.

- The KOH tank overflowed before 1973. The quantity spilled is unknown. The HRR (DOE 1992) states that "as a result of this incident, it is likely that the caustic seeped through the soil and infiltrated beneath the building." This, however, is an unlikely scenario given the depth to which the KOH would have to infiltrate, properties of KOH, and the nature of RFETS soil, unless the spill involved a very large quantity.
- During the week ending May 5, 1978, a spill occurred at a caustic tank near Building 771. The spill occurred during a routine filling operation but was contained by the dike surrounding the tank. This spill is believed to have involved the KOH tank.
- On November 13, 1989, the potassium tank was overfilled. Approximately 5 gallons of 12-molar KOH spilled into the earthen berm that surrounds the tank. Approximately 100 pounds of "oil dry" was used to absorb the KOH. The contaminated soil and oil dry were removed and placed into drums. The RFETS Fire Department hazardous materials team verified that the contaminated area was adequately cleaned up. The area was backfilled with new gravel.

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The impact of these releases on groundwater at the Site is not known but is believed to be minimal. Surface soil samples were collected and analyzed during the OU 8 Phase 1 RFI/RI. The SVOCs benzo(a)pyrene, benzo(a)anthracene, benzo(b)fluoranthene, and indeno(1,2,3-cd)pyrene were detected. Concentrations of the following metals and radionuclides exceeded background values: calcium, chromium, silver, americium-241, and plutonium-239/240. Concentrations of the SVOC benzo(a)pyrene were greater than the WRW AL. Historical analytical data for soil at this site are available in the IA Data Summary Report (DOE 2000).

2.2 Accelerated Action Characterization Deviations From the IASAP Addendum

Table 1 presents a comparison of planned to actual accelerated action characterization sampling specifications, and includes explanations for deviations from IASAP Addendum #IA-03-18 (DOE 2003b). As noted in Table 1, most of the deviations were the result of refusal during sampling.

Table 1
IHSS Group 700-6 Accelerated Action Characterization
Comparison of Planned to Actual Soil Sampling Specifications

IHSS	Sampling Location	Planned Easting	Planed Northing	Actual Easting	Actual Northing	Actual Sample Interval (ft)	Actual Analyses	Deviations
IHSS 137	CG46-010	2084044.480	750760.380	2084044.433	750735.445	10-10.5 10.5-12.50	Radionuclides Metals SVOCs VOCs	Statistical location; surveyed location at edge of excavation and approximately 25 ft south of planned; samples were actually collected from within the excavation. Structure was full of water and samples were collected as the structure was excavated. The A interval did not exist at this location. Soil underneath the structure was sampled.
	CG46-011	2084076.500	750758.660	2084069.431	750758.642	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate drain tee; offset 7 ft west to be as close to the structure as possible.
	CG46-012	2084066.020	750738.950	2084066.011	750723.933	10-10.5 10.5-12.5	Radionuclides Metals SVOCs VOCs	Biased location; selected to investigate Building 712 pump sump/tower blowdown pipe outfall; surveyed location at edge of excavation and approximately 15 ft south of planned; samples were actually collected within the excavation. Structure was full of water and samples were collected as the structure was excavated. The A interval did not exist at this location. Soil underneath the structure was sampled.
	CG46-013	2084047.150	750738.530	2084047.186	750726.512	10-10.5 10.5-12.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate Building 713 pump sump/tower blowdown pipe outfall; sampling location approximately 12 ft south of planned; samples collected with excavator bucket because of water in the excavation; surface sample interval too small to collect.
	CG46-014	2084022.410	750739.370	2084022.439	750739.336	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate southwestern corner of IHSS 137. No significant difference.

IHSS	Sampling Location	Planned Easting	Planed Northing	Actual Easting	Actual Northing	Actual Sample Interval (ft)	Actual Analyses	Deviations
IHSS 137	CG47-007	2084115.850	750769.920	2084115.902	750769.945	0-0.5 0.5-2.0	Radionuclides Metals SVOCs VOCs	Statistical; refusal at 2.0 ft because of cobble layer. However, all analyses were performed.
	CG47-008	2084080.170	750765.150	2084083.547	750779.042	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Statistical; offset approximately 14 ft north and 3 ft east because of a large dirt pile.
	CG47-009	2084129.560	750803.210	2084129.501	750803.040	0-0.5 0.5-1.5	Radionuclides Metals SVOCs VOCs	Statistical; refusal at 1.5 ft because of cobble layer. However, all analyses were performed.
	CG47-010	2084093.880	750798.440	NA	NA	NA	NA	Not sampled because located in area previously excavated for OPWL project; no OPWL sample.
	CG47-011	2084058.190	750793.670	2084058.186	750793.627	0-0.5 0.5-0.8	Radionuclides Metals SVOCs VOCs	Statistical; refusal at 0.8 ft because of cobble layer; however, all analyses were performed.
	CG47-012	2084022.510	750788.900	2084022.572	750788.847	0-0.5 0.5-1.9	Radionuclides Metals SVOCs VOCs	Statistical; refusal at 1.9 ft because of cobbles; however, all analyses were performed.
	CG47-013	2084107.580	750831.720	2084107.641	750828.553	0-0.5 0.5-1.5	Radionuclides Metals SVOCs VOCs	Statistical; offset approximately 3 ft south because of obstruction; poor recovery and refusal at 1.5 ft because of cobble layer; however, all analyses were performed.
	CG47-014	2084071.900	750826.950	2084071.930	750826.943	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Statistical. No significant deviation.

IHSS	Sampling Location	Planned Easting	Planed Northing	Actual Easting	Actual Northing	Actual Sample Interval (ft)	Actual Analyses	Deviations
IHSS 137	CG47-015	2084036.220	750822.180	2084036.221	750822.142	0-0.5 0.5-1.8	Radionuclides Metals SVOCs VOCs	Statistical; poor recovery and refusal at 1.8 ft because of cobble layer; however, all analyses were performed.
	CG47-016	2084030.380	750842.110	2084034.877	750843.550	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location chosen to investigate pipe outfall; no pipe outfall was found so sampling location was moved approximately 5 ft east to investigate a pipe.
	CG47-017	2084050.080	750825.760	2084050.082	750823.800	0-0.5 0.5-0.8	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate crack in foundation; moved 2 ft south to avoid footer; poor recovery and refusal at 0.8 ft because of cobble layer; however, all analyses were performed.
	CG47-018	2084075.240	750812.760	2084070.271	750813.344	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate drain tee; offset approximately 5 ft west to be closer to the foundation.
	CG47-019	2084076.080	750777.950	2084070.230	750777.492	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate drain tee; offset 7 ft west to locate next to the pit foundation.
	CG47-020	2084055.530	750773.340	2084055.545	750773.384	0-0.5 0.5-1.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate foundation joint/crack; poor recovery and refusal at 1.5 ft because of cobble layer; however, all analyses were performed.
	CG47-022	2084111.310	750775.440	2084105.490	750785.288	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate pipe outfall; relocated approximately 10 ft north and 6 ft west to actual pipe outfall.
	CG47-023	2084110.470	750781.730	2084110.514	750781.726	0-0.5 0.5-2	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate Building 713 pump sump; poor recovery and refusal at 2.0 ft because of cobble layer; however, all analyses were performed.

IHSS	Sampling Location	Planned Easting	Planed Northing	Actual Easting	Actual Northing	Actual Sample Interval (ft)	Actual Analyses	Deviations
IHSS 137	CG47-024	2084110.470	750797.240	2084110.432	750797.292	0-0.5 0.5-1.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate Building 713 pump sump; poor recovery and refusal at 1.5 ft because of cobble layer; however, all analyses were performed.
	CG47-025	2084111.310	750803.530	2084104.893	750802.970	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate pipe outfall; offset approximately 6 ft west to relocate off slab.
	CG47-026	2084100.820	750789.270	2084100.828	750789.282	0-0.5 0.5-1.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate Building 713 pump sump; poor recovery and refusal at 1.5 ft because of cobble layer; however, all analyses were performed.
	CG47-027	2084119.690	750809.820	2084119.681	750799.746	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate crack in foundation; offset 10 ft north.
	CG47-028	2084125.560	750762.020	2084125.516	750762.018	0-0.5 0.5-2.0	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate crack in foundation; poor recovery and refusal at 2.0 ft because of cobble layer; however, all analyses were performed.
	CG47-029	2084092.860	750781.730	NA	NA	NA	NA	Biased location at OPWL junction; not sampled because located in area previously excavated for OPWL project; no OPWL sample.
	CH46-032	2084159.530	750755.310	NA	NA	NA	NA	Biased location at OPWL junction; not sampled because located in area previously excavated for OPWL project; no OPWL sample.
	CH47-007	2084151.530	750774.690	2084149.033	750773.828	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Statistical. No significant difference.

IHSS	Sampling Location	Planned Easting	Planed Northing	Actual Easting	Actual Northing	Actual Sample Interval (ft)	Actual Analyses	Deviations
IHSS 137	CH47-008	2084143.270	750836.500	2084143.221	750836.515	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Statistical. No significant difference.
	CH47-009	2084159.950	750777.110	2084158.756	750778.452	0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate sump; A and B intervals were to be collected from the sump. The A interval was missing. B interval was sampled, as possible, because of the presence of a pipe in the sump.
	CH47-010	2084160.790	750790.950	2084160.691	750791.047	8-8.5 8.5-10.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate valve pit; Valve pit was full of water. No A interval was present at that time. When the structure was removed, then samples were collected with excavator bucket. There was no surface interval; 8-8.5 ft interval was collected but VOCs were not analyzed because this interval had been exposed to air for sometime.
IHSS 139.1(S)	CF47-008	2083923.450	750808.560	2083923.437	750808.513	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate northwestern corner of IHSS 139.1(S). No significant difference.
	CF47-009	2083922.190	750784.660	2083922.163	750784.653	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate southwestern corner of IHSS 139.1(S). No significant difference.
	CF47-010	2083927.640	750798.500	2083927.585	750798.405	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate depression. No significant difference.
	CG47-030	2083953.220	750808.560	2083953.234	750808.481	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate northeastern corner of IHSS 139.1(S). No significant difference.

IHSS	Sampling Location	Planned Easting	Planed Northing	Actual Easting	Actual Northing	Actual Sample Interval (ft)	Actual Analyses	Deviations
IHSS 139.1(S)	CG47-031	2083951.120	750788.020	2083958.737	750792.982	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate cement pad/depression; relocated 6 ft northeast to actual area that accumulates water between the edge of the slab and berm.
	CG47-032	2083938.540	750792.630	2083938.646	750792.525	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate 50-gallon plastic tank. No significant difference.
	CG47-033	2083949.860	750798.500	2083954.913	750802.868	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate pipe outfall; no pipe outfall was found and location was moved approximately 4 ft north and 5 ft east to investigate a blind flanged pipe.
	CG47-034	2083941.900	750798.920	2083949.418	750797.661	0-0.5 0.5-2.5	Radionuclides Metals SVOCs VOCs	Biased location selected to investigate depression, relocated approximately 7 ft east to actual area that accumulates water between the edge of the slab and berm.

Table 2 presents a summary of planned sampling and analyses versus actual sampling and analyses.

Table 2
IHSS Group 700-6 Accelerated Action Characterization
Summary of Soil Sampling and Analyses

IHSS Group 700-6	Planned	Actual
Sampling Locations	40	37
Surface Soil Samples	40	32
Subsurface Soil Samples	43	41
Number of Samples	83	73

2.3 Accelerated Action Characterization Data

IHSS Group 700-6 characterization soil data greater than reporting limits (RLs) or BGM+2SDs mean plus two standard deviations are presented in Table 3. WRW AL exceedances are bold in Table 3. Figure 4 presents surface soil data and Figure 5 presents subsurface soil data. WRW AL exceedances are shown in red on the tables included on Figures 4 and 5.

2.4 Sums of Ratios and Summary Statistics

SORs were calculated for soil at sampling locations in IHSS Group 700-6. Radionuclide SORs were calculated for surface (0 to 2.5 ft below ground surface [bgs]) soil samples where radionuclide contaminants of concern (COCs) had been detected at activities greater than BGM+2SDs (americium-241, plutonium-239/240, uranium-234, uranium-235, and uranium-238). When radionuclide activities were measured using high-purity germanium (HPGe), plutonium-239/240 activities were derived from americium-241 activities (americium-241 gamma spectroscopy activity x 5.7). The radionuclide SORs are presented in Table 4. All radionuclide SORs were less than 1.

Nonradionuclide SORs were calculated for surface (0 to 0.5 ft bgs) soil samples where nonradionuclide COCs had been detected at concentrations of 10 percent of the applicable WRW AL. SORs were not calculated for aluminum, arsenic, iron, manganese, and polyaromatic hydrocarbons (PAHs). Nonradionuclide SORs are presented in Table 5. All nonradionuclide SORs were less than 1 except at surface soil sampling location CG47-025. The SOR of 1.754 at this location is the result of lead detected in soil at 970 milligrams per kilogram (mg/kg), which is very close to the WRW AL.

Non-radionuclide SORs for historical sampling locations were qualitatively considered. Only location SS801993, where chromium was present in surface soil at concentrations greater than the WRW AL, would have had a non-radionuclide SOR greater than 1. Surface soil at sampling location SS801993 has been removed.

The summary statistics for the IHSS Group 700-6 surface and subsurface soil samples are presented in Tables 6 and 7, respectively

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Table 3
IHSS Group 700-6 Accelerated Action Characterization
Soil Data Greater Than RLs or WRW ALs

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
IHSS 700-137										
CG46-010	2084044.433	750735.445	10	10.5	Uranium-238	2.104	-	1.49	351	pCi/g
CG46-010	*2084044.433*	*750735.445*	*10.5*	*12.5*	*Uranium-234*	*2.689*	-	*2.64*	*300*	*pCi/g*
CG46-010	2084044.433	750735.445	10.5	12.5	Uranium-235	0.1848	-	0.12	8	pCi/g
CG46-010	2084044.433	750735.445	10.5	12.5	Uranium-238	2.689	-	1.49	351	pCi/g
CG46-011	2084069.431	750758.642	0	0.5	2-Methylnaphthalene	120	38	-	20400000	ug/kg
CG46-011	2084069.431	750758.642	0	0.5	Acenaphthene	790	36	-	40800000	ug/kg
CG46-011	2084069.431	750758.642	0	0.5	Aluminum	29000	-	16902	228000	mg/kg
CG46-011	2084069.431	750758.642	0	0.5	Anthracene	920	28	-	204000000	ug/kg
CG46-011	2084069.431	750758.642	0	0.5	Antimony	4	-	0.47	409	mg/kg
CG46-011	2084069.431	750758.642	0	0.5	Arsenic	13	-	10.09000015	22.2	mg/kg
CG46-011	2084069.431	750758.642	0	0.5	Barium	180	-	141.2599945	26400	mg/kg
CG46-011	2084069.431	750758.642	0	0.5	Benzo(a)anthracene	2000	29	-	34900	ug/kg
CG46-011	2084069.431	750758.642	0	0.5	Benzo(a)pyrene	2100	47	-	3490	ug/kg
CG46-011	2084069.431	750758.642	0	0.5	Benzo(b)fluoranthene	1700	34	-	34900	ug/kg
CG46-011	2084069.431	750758.642	0	0.5	Benzo(k)fluoranthene	1900	38	-	349000	ug/kg
CG46-011	2084069.431	750758.642	0	0.5	Benzoic Acid	460	340	-	1000000000	ug/kg
CG46-011	2084069.431	750758.642	0	0.5	Beryllium	1.2	-	0.966000021	921	mg/kg
CG46-011	2084069.431	750758.642	0	0.5	Butylbenzylphthalate	1400	78	-	147000000	ug/kg
CG46-011	2084069.431	750758.642	0	0.5	Cadmium	3.9	-	1.611999989	962	mg/kg
CG46-011	2084069.431	750758.642	0	0.5	Chromium	100	-	16.98999977	268	mg/kg
CG46-011	2084069.431	750758.642	0	0.5	Chrysene	2300	33	-	3490000	ug/kg
CG46-011	2084069.431	750758.642	0	0.5	Copper	430	-	18.05999947	40900	mg/kg
CG46-011	2084069.431	750758.642	0	0.5	Dibenzofuran	280	43	-	2950000	ug/kg
CG46-011	2084069.431	750758.642	0	0.5	Fluoranthene	6300	27	-	27200000	ug/kg
CG46-011	2084069.431	750758.642	0	0.5	Fluorene	620	40	-	40800000	ug/kg
CG46-011	2084069.431	750758.642	0	0.5	Indeno(1,2,3-cd)pyrene	1500	27	-	34900	ug/kg
CG46-011	2084069.431	750758.642	0	0.5	Iron	24000	-	18037	307000	mg/kg
CG46-011	2084069.431	750758.642	0	0.5	Lead	69	-	54.61999893	1000	mg/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG46-011	2084069.431	750758.642	0	0.5	Lithium	18	-	11.55000019	20400	mg/kg
CG46-011	2084069.431	750758.642	0	0.5	Mercury	0.22	-	0.134000003	25200	mg/kg
CG46-011	2084069.431	750758.642	0	0.5	Naphthalene	260	38	-	3090000	ug/kg
CG46-011	2084069.431	750758.642	0	0.5	Nickel	22	-	14.90999985	20400	mg/kg
CG46-011	2084069.431	750758.642	0	0.5	Pyrene	5200	160	-	22100000	ug/kg
CG46-011	2084069.431	750758.642	0	0.5	Strontium	84	-	48.93999863	613000	mg/kg
CG46-011	*2084069.431*	*750758.642*	*0*	*0.5*	*Uranium-234*	*3.262*	-	*2.253000021*	*300*	*pCi/g*
CG46-011	2084069.431	750758.642	0	0.5	Uranium-238	3.262	-	2	351	pCi/g
CG46-011	2084069.431	750758.642	0	0.5	Zinc	410	-	73.76000214	307000	mg/kg
CG46-011	2084069.431	750758.642	0.5	2.5	Acenaphthene	110	34	-	40800000	ug/kg
CG46-011	2084069.431	750758.642	0.5	2.5	Anthracene	150	26	-	204000000	ug/kg
CG46-011	2084069.431	750758.642	0.5	2.5	Benzo(a)anthracene	330	27	-	34900	ug/kg
CG46-011	2084069.431	750758.642	0.5	2.5	Benzo(a)pyrene	340	44	-	3490	ug/kg
CG46-011	2084069.431	750758.642	0.5	2.5	Benzo(b)fluoranthene	240	32	-	34900	ug/kg
CG46-011	2084069.431	750758.642	0.5	2.5	Benzo(k)fluoranthene	320	35	-	349000	ug/kg
CG46-011	2084069.431	750758.642	0.5	2.5	Butylbenzylphthalate	83	73	-	147000000	ug/kg
CG46-011	2084069.431	750758.642	0.5	2.5	Chrysene	370	31	-	3490000	ug/kg
CG46-011	2084069.431	750758.642	0.5	2.5	Fluoranthene	890	25	-	27200000	ug/kg
CG46-011	2084069.431	750758.642	0.5	2.5	Fluorene	76	38	-	40800000	ug/kg
CG46-011	2084069.431	750758.642	0.5	2.5	Pyrene	770	150	-	22100000	ug/kg
CG46-012	2084066.011	750723.933	10	10.5	Uranium-234	2.667	-	2.64	300	pCi/g
CG46-012	2084066.011	750723.933	10	10.5	Uranium-235	0.189	-	0.12	8	pCi/g
CG46-012	2084066.011	750723.933	10	10.5	Uranium-238	2.667	-	1.49	351	pCi/g
CG46-012	*2084066.011*	*750723.933*	*10.5*	*12.5*	*Uranium-234*	*3.973*	-	*2.64*	*300*	*pCi/g*
CG46-012	2084066.011	750723.933	10.5	12.5	Uranium-235	0.2272	-	0.12	8	pCi/g
CG46-012	2084066.011	750723.933	10.5	12.5	Uranium-238	3.973	-	1.49	351	pCi/g
CG46-013	2084047.186	750726.512	10	10.5	Uranium-235	0.1267	-	0.12	8	pCi/g
CG46-013	*2084047.186*	*750726.512*	*10.5*	*12.5*	*Uranium-234*	*3.483*	-	*2.64*	*300*	*pCi/g*
CG46-013	2084047.186	750726.512	10.5	12.5	Uranium-235	0.1959	-	0.12	8	pCi/g
CG46-013	2084047.186	750726.512	10.5	12.5	Uranium-238	3.483	-	1.49	351	pCi/g
CG46-014	2084022.439	750739.336	0	0.5	2-Methylnaphthalene	85	35	-	20400000	ug/kg
CG46-014	2084022.439	750739.336	0	0.5	Acenaphthene	680	33	-	40800000	ug/kg
CG46-014	2084022.439	750739.336	0	0.5	Aluminum	18000	-	16902	228000	mg/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG46-014	2084022.439	750739.336	0	0.5	Anthracene	780	26	-	204000000	ug/kg
CG46-014	2084022.439	750739.336	0	0.5	Antimony	5.9	-	0.47	409	mg/kg
CG46-014	2084022.439	750739.336	0	0.5	Barium	180	-	141.2599945	26400	mg/kg
CG46-014	2084022.439	750739.336	0	0.5	Benzo(a)anthracene	1900	27	-	34900	ug/kg
CG46-014	2084022.439	750739.336	0	0.5	Benzo(a)pyrene	2000	44	-	3490	ug/kg
CG46-014	2084022.439	750739.336	0	0.5	Benzo(b)fluoranthene	1700	31	-	34900	ug/kg
CG46-014	2084022.439	750739.336	0	0.5	Benzo(k)fluoranthene	1700	35	-	349000	ug/kg
CG46-014	2084022.439	750739.336	0	0.5	bis(2-Ethylhexyl)phthalate	200	78	-	1970000	ug/kg
CG46-014	2084022.439	750739.336	0	0.5	Cadmium	3.3	-	1.611999989	962	mg/kg
CG46-014	2084022.439	750739.336	0	0.5	Chromium	58	-	16.98999977	268	mg/kg
CG46-014	2084022.439	750739.336	0	0.5	Chrysene	2300	30	-	3490000	ug/kg
CG46-014	2084022.439	750739.336	0	0.5	Copper	150	-	18.05999947	40900	mg/kg
CG46-014	2084022.439	750739.336	0	0.5	Dibenzofuran	220	39	-	2950000	ug/kg
CG46-014	2084022.439	750739.336	0	0.5	Fluoranthene	5700	25	-	27200000	ug/kg
CG46-014	2084022.439	750739.336	0	0.5	Fluorene	480	37	-	40800000	ug/kg
CG46-014	2084022.439	750739.336	0	0.5	Iron	21000	-	18037	307000	mg/kg
CG46-014	2084022.439	750739.336	0	0.5	Lead	190	-	54.61999893	1000	mg/kg
CG46-014	2084022.439	750739.336	0	0.5	Lithium	14	-	11.55000019	20400	mg/kg
CG46-014	2084022.439	750739.336	0	0.5	Manganese	400	-	365.0799866	3480	mg/kg
CG46-014	2084022.439	750739.336	0	0.5	Mercury	2.4	-	0.134000003	25200	mg/kg
CG46-014	2084022.439	750739.336	0	0.5	Naphthalene	170	35	-	3090000	ug/kg
CG46-014	2084022.439	750739.336	0	0.5	Nickel	20	-	14.90999985	20400	mg/kg
CG46-014	2084022.439	750739.336	0	0.5	Pentachlorophenol	780	120	-	162000	ug/kg
CG46-014	2084022.439	750739.336	0	0.5	Pyrene	4900	150	-	22100000	ug/kg
CG46-014	*2084022.439*	*750739.336*	*0*	*0.5*	*Uranium-234*	*4.553*	-	*2.253000021*	*300*	*pCi/g*
CG46-014	2084022.439	750739.336	0	0.5	Uranium-235	0.2963	-	0.093900003	8	pCi/g
CG46-014	2084022.439	750739.336	0	0.5	Uranium-238	4.553	-	2	351	pCi/g
CG46-014	2084022.439	750739.336	0	0.5	Zinc	1000	-	73.76000214	307000	mg/kg
CG46-014	2084022.439	750739.336	0.5	2.5	Uranium-235	0.1565	-	0.12	8	pCi/g
CG47-007	2084115.902	750769.945	0	0.5	Acenaphthene	39	33	-	40800000	ug/kg
CG47-007	2084115.902	750769.945	0	0.5	Anthracene	170	25	-	204000000	ug/kg
CG47-007	2084115.902	750769.945	0	0.5	Benzo(a)anthracene	97	26	-	34900	ug/kg
CG47-007	2084115.902	750769.945	0	0.5	Benzo(a)pyrene	100	43	-	3490	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-007	2084115.902	750769.945	0	0.5	Benzo(b)fluoranthene	150	31	-	34900	ug/kg
CG47-007	2084115.902	750769.945	0	0.5	Benzo(k)fluoranthene	92	34	-	349000	ug/kg
CG47-007	2084115.902	750769.945	0	0.5	bis(2-Ethylhexyl)phthalate	96	77	-	1970000	ug/kg
CG47-007	2084115.902	750769.945	0	0.5	Chrysene	110	30	-	3490000	ug/kg
CG47-007	2084115.902	750769.945	0	0.5	Copper	22	-	18.05999947	40900	mg/kg
CG47-007	2084115.902	750769.945	0	0.5	Di-n-butylphthalate	120	22	-	73700000	ug/kg
CG47-007	2084115.902	750769.945	0	0.5	Fluoranthene	380	24	-	27200000	ug/kg
CG47-007	2084115.902	750769.945	0	0.5	Indeno(1,2,3-cd)pyrene	63	24	-	34900	ug/kg
CG47-007	2084115.902	750769.945	0	0.5	Pyrene	370	140	-	22100000	ug/kg
CG47-007	*2084115.902*	*750769.945*	*0*	*0.5*	*Uranium-234*	*4.179*	-	*2.253000021*	*300*	*pCi/g*
CG47-007	2084115.902	750769.945	0	0.5	Uranium-235	0.2333	-	0.093900003	8	pCi/g
CG47-007	2084115.902	750769.945	0	0.5	Uranium-238	4.179	-	2	351	pCi/g
CG47-007	2084115.902	750769.945	0.5	2.0	Acenaphthene	140	35	-	40800000	ug/kg
CG47-007	2084115.902	750769.945	0.5	2.0	Anthracene	280	27	-	204000000	ug/kg
CG47-007	2084115.902	750769.945	0.5	2.0	Benzo(a)anthracene	340	28	-	34900	ug/kg
CG47-007	2084115.902	750769.945	0.5	2.0	Benzo(a)pyrene	350	45	-	3490	ug/kg
CG47-007	2084115.902	750769.945	0.5	2.0	Benzo(b)fluoranthene	340	33	-	34900	ug/kg
CG47-007	2084115.902	750769.945	0.5	2.0	Benzo(k)fluoranthene	330	36	-	349000	ug/kg
CG47-007	2084115.902	750769.945	0.5	2.0	bis(2-Ethylhexyl)phthalate	110	82	-	1970000	ug/kg
CG47-007	2084115.902	750769.945	0.5	2.0	Chrysene	390	31	-	3490000	ug/kg
CG47-007	2084115.902	750769.945	0.5	2.0	Dibenz(a,h)anthracene	54	28	-	3490	ug/kg
CG47-007	2084115.902	750769.945	0.5	2.0	Di-n-butylphthalate	130	23	-	73700000	ug/kg
CG47-007	2084115.902	750769.945	0.5	2.0	Fluoranthene	1100	26	-	27200000	ug/kg
CG47-007	2084115.902	750769.945	0.5	2.0	Fluorene	96	38	-	40800000	ug/kg
CG47-007	2084115.902	750769.945	0.5	2.0	Indeno(1,2,3-cd)pyrene	230	26	-	34900	ug/kg
CG47-007	2084115.902	750769.945	0.5	2.0	Pyrene	1100	150	-	22100000	ug/kg
CG47-007	*2084115.902*	*750769.945*	*0.5*	*2.0*	*Uranium-234*	*4.94*	-	*2.64*	*300*	*pCi/g*
CG47-007	2084115.902	750769.945	0.5	2.0	Uranium-235	0.3543	-	0.12	8	pCi/g
CG47-007	2084115.902	750769.945	0.5	2.0	Uranium-238	4.94	-	1.49	351	pCi/g
CG47-008	2084083.547	750779.042	0	0.5	Acenaphthene	220	34	-	40800000	ug/kg
CG47-008	2084083.547	750779.042	0	0.5	Aluminum	18000	-	16902	228000	mg/kg
CG47-008	2084083.547	750779.042	0	0.5	Americium-241	0.4522	-	0.022700001	76	pCi/g
CG47-008	2084083.547	750779.042	0	0.5	Anthracene	250	26	-	204000000	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-008	2084083.547	750779.042	0	0.5	Antimony	2.6	-	0.47	409	mg/kg
CG47-008	2084083.547	750779.042	0	0.5	Benzo(a)anthracene	620	27	-	34900	ug/kg
CG47-008	2084083.547	750779.042	0	0.5	Benzo(a)pyrene	660	44	-	3490	ug/kg
CG47-008	2084083.547	750779.042	0	0.5	Benzo(b)fluoranthene	490	31	-	34900	ug/kg
CG47-008	2084083.547	750779.042	0	0.5	Benzo(k)fluoranthene	510	35	-	349000	ug/kg
CG47-008	2084083.547	750779.042	0	0.5	Benzoic Acid	510	310	-	1000000000	ug/kg
CG47-008	2084083.547	750779.042	0	0.5	bis(2-Ethylhexyl)phthalate	170	79	-	1970000	ug/kg
CG47-008	2084083.547	750779.042	0	0.5	Butylbenzylphthalate	290	72	-	147000000	ug/kg
CG47-008	2084083.547	750779.042	0	0.5	Cadmium	1.8	-	1.611999989	962	mg/kg
CG47-008	2084083.547	750779.042	0	0.5	Chromium	37	-	16.98999977	268	mg/kg
CG47-008	2084083.547	750779.042	0	0.5	Chrysene	680	30	-	3490000	ug/kg
CG47-008	2084083.547	750779.042	0	0.5	Copper	270	-	18.05999947	40900	mg/kg
CG47-008	2084083.547	750779.042	0	0.5	Dibenz(a,h)anthracene	170	27	-	3490	ug/kg
CG47-008	2084083.547	750779.042	0	0.5	Dibenzofuran	72	39	-	2950000	ug/kg
CG47-008	2084083.547	750779.042	0	0.5	Dimethylphthalate	180	44	-	1000000000	ug/kg
CG47-008	2084083.547	750779.042	0	0.5	Fluoranthene	1700	25	-	27200000	ug/kg
CG47-008	2084083.547	750779.042	0	0.5	Fluorene	160	37	-	40800000	ug/kg
CG47-008	2084083.547	750779.042	0	0.5	Indeno(1,2,3-cd)pyrene	480	25	-	34900	ug/kg
CG47-008	2084083.547	750779.042	0	0.5	Iron	21000	-	18037	307000	mg/kg
CG47-008	2084083.547	750779.042	0	0.5	Lithium	13	-	11.55000019	20400	mg/kg
CG47-008	2084083.547	750779.042	0	0.5	Mercury	0.19	-	0.134000003	25200	mg/kg
CG47-008	2084083.547	750779.042	0	0.5	Naphthalene	61	35	-	3090000	ug/kg
CG47-008	2084083.547	750779.042	0	0.5	Nickel	16	-	14.90999985	20400	mg/kg
CG47-008	2084083.547	750779.042	0	0.5	Plutonium-239/240	2.57754	-	0.066	50	pCi/g
CG47-008	2084083.547	750779.042	0	0.5	Pyrene	1400	150	-	22100000	ug/kg
CG47-008	2084083.547	750779.042	0	0.5	Strontium	59	-	48.93999863	613000	mg/kg
CG47-008	2084083.547	750779.042	0	0.5	Uranium-235	0.1943	-	0.093900003	8	pCi/g
CG47-008	2084083.547	750779.042	0	0.5	Uranium-238	2.144	-	2	351	pCi/g
CG47-008	2084083.547	750779.042	0	0.5	Zinc	440	-	73.76000214	307000	mg/kg
CG47-008	2084083.547	750779.042	0.5	2.5	Benzo(b)fluoranthene	36	30	-	34900	ug/kg
CG47-008	2084083.547	750779.042	0.5	2.5	Fluoranthene	61	24	-	27200000	ug/kg
CG47-008	2084083.547	750779.042	0.5	2.5	Lead	61	-	24.97	1000	mg/kg
CG47-008	2084083.547	750779.042	0.5	2.5	Uranium-235	0.1506	-	0.12	8	pCi/g

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-008	2084083.547	750779.042	0.5	2.5	Uranium-238	1.559	-	1.49	351	pCi/g
CG47-009	2084129.501	750803.040	0	0.5	Americium-241	0.166	-	0.022700001	76	pCi/g
CG47-009	2084129.501	750803.040	0	0.5	Anthracene	56	24	-	204000000	ug/kg
CG47-009	2084129.501	750803.040	0	0.5	Benzo(a)anthracene	110	25	-	34900	ug/kg
CG47-009	2084129.501	750803.040	0	0.5	Chrysene	120	29	-	3490000	ug/kg
CG47-009	2084129.501	750803.040	0	0.5	Copper	27	-	18.05999947	40900	mg/kg
CG47-009	2084129.501	750803.040	0	0.5	Di-n-butylphthalate	110	21	-	73700000	ug/kg
CG47-009	2084129.501	750803.040	0	0.5	Fluoranthene	300	23	-	27200000	ug/kg
CG47-009	2084129.501	750803.040	0	0.5	Pyrene	210	140	-	22100000	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	2-Butanone	5.1	5.1	-	192000000	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	2-Methylnaphthalene	38	34	-	20400000	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Acenaphthene	350	33	-	40800000	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Acetone	23	5	-	102000000	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Americium-241	0.0762	-	0.02	76	pCi/g
CG47-009	2084129.501	750803.040	0.5	1.5	Anthracene	450	25	-	204000000	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Benzo(a)anthracene	870	26	-	34900	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Benzo(b)fluoranthene	660	30	-	34900	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Benzo(k)fluoranthene	890	34	-	349000	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Carbon Disulfide	1.9	1	-	15100000	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Chrysene	990	29	-	3490000	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Di-n-butylphthalate	60	22	-	73700000	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Fluoranthene	2500	24	-	27200000	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Fluorene	280	36	-	40800000	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Indeno(1,2,3-cd)pyrene	590	24	-	34900	ug/kg
CG47-009	2084129.501	750803.040	0.5	1.5	Pyrene	2300	140	-	22100000	ug/kg
CG47-011	2084058.186	750793.627	0	0.5	Aluminum	25000	-	16902	228000	mg/kg
CG47-011	2084058.186	750793.627	0	0.5	Beryllium	1.2	-	0.966000021	921	mg/kg
CG47-011	2084058.186	750793.627	0	0.5	Chromium	22	-	16.98999977	268	mg/kg
CG47-011	2084058.186	750793.627	0	0.5	Cobalt	16	-	10.90999985	1550	mg/kg
CG47-011	2084058.186	750793.627	0	0.5	Copper	31	-	18.05999947	40900	mg/kg
CG47-011	2084058.186	750793.627	0	0.5	Nickel	18	-	14.90999985	20400	mg/kg
CG47-011	*2084058.186*	*750793.627*	*0*	*0.5*	*Uranium-234*	*7.735*	-	*2.253000021*	*300*	*pCi/g*
CG47-011	2084058.186	750793.627	0	0.5	Uranium-238	7.735	-	2	351	pCi/g

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-011	**2084058.186**	**750793.627**	**0.5**	**0.8**	**Chromium**	**300**	**-**	**68.27**	**268**	**mg/kg**
CG47-011	2084058.186	750793.627	0.5	0.8	Nickel	150	-	62.21	20400	mg/kg
CG47-011	*2084058.186*	*750793.627*	*0.5*	*0.8*	*Uranium-234*	*3.877*	-	*2.64*	*300*	*pCi/g*
CG47-011	2084058.186	750793.627	0.5	0.8	Uranium-235	0.432	-	0.12	8	pCi/g
CG47-011	2084058.186	750793.627	0.5	0.8	Uranium-238	3.877	-	1.49	351	pCi/g
CG47-012	2084022.572	750788.847	0	0.5	Acenaphthene	200	35	-	40800000	ug/kg
CG47-012	2084022.572	750788.847	0	0.5	Aluminum	18000	-	16902	228000	mg/kg
CG47-012	2084022.572	750788.847	0	0.5	Anthracene	210	27	-	204000000	ug/kg
CG47-012	2084022.572	750788.847	0	0.5	Antimony	0.99	-	0.47	409	mg/kg
CG47-012	2084022.572	750788.847	0	0.5	Benzo(a)anthracene	520	28	-	34900	ug/kg
CG47-012	2084022.572	750788.847	0	0.5	Benzo(a)pyrene	500	45	-	3490	ug/kg
CG47-012	2084022.572	750788.847	0	0.5	Benzo(b)fluoranthene	390	32	-	34900	ug/kg
CG47-012	2084022.572	750788.847	0	0.5	Benzo(k)fluoranthene	430	36	-	349000	ug/kg
CG47-012	2084022.572	750788.847	0	0.5	Beryllium	1.1	-	0.966000021	921	mg/kg
CG47-012	2084022.572	750788.847	0	0.5	Chromium	26	-	16.98999977	268	mg/kg
CG47-012	2084022.572	750788.847	0	0.5	Chrysene	600	31	-	3490000	ug/kg
CG47-012	2084022.572	750788.847	0	0.5	Copper	39	-	18.05999947	40900	mg/kg
CG47-012	2084022.572	750788.847	0	0.5	Dibenz(a,h)anthracene	110	28	-	3490	ug/kg
CG47-012	2084022.572	750788.847	0	0.5	Dibenzofuran	63	40	-	2950000	ug/kg
CG47-012	2084022.572	750788.847	0	0.5	Fluoranthene	1300	25	-	27200000	ug/kg
CG47-012	2084022.572	750788.847	0	0.5	Fluorene	150	38	-	40800000	ug/kg
CG47-012	2084022.572	750788.847	0	0.5	Indeno(1,2,3-cd)pyrene	320	25	-	34900	ug/kg
CG47-012	2084022.572	750788.847	0	0.5	Lithium	13	-	11.55000019	20400	mg/kg
CG47-012	2084022.572	750788.847	0	0.5	Nickel	15	-	14.90999985	20400	mg/kg
CG47-012	2084022.572	750788.847	0	0.5	Pyrene	1200	150	-	22100000	ug/kg
CG47-012	*2084022.572*	*750788.847*	*0*	*0.5*	*Uranium-234*	*2.499*	-	*2.253000021*	*300*	*pCi/g*
CG47-012	2084022.572	750788.847	0	0.5	Uranium-235	0.184	-	0.093900003	8	pCi/g
CG47-012	2084022.572	750788.847	0	0.5	Uranium-238	2.499	-	2	351	pCi/g
CG47-012	2084022.572	750788.847	0.5	1.9	2-Methylnaphthalene	65	37	-	20400000	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Acenaphthene	680	36	-	40800000	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Anthracene	720	28	-	204000000	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Benzo(a)anthracene	1500	29	-	34900	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Benzo(a)pyrene	1500	47	-	3490	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-012	2084022.572	750788.847	0.5	1.9	Benzo(b)fluoranthene	1200	34	-	34900	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Benzo(k)fluoranthene	1200	37	-	349000	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Chrysene	1800	32	-	3490000	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Dibenz(a,h)anthracene	290	29	-	3490	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Dibenzofuran	230	42	-	2950000	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Fluoranthene	3400	26	-	27200000	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Fluorene	510	40	-	40800000	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Indeno(1,2,3-cd)pyrene	820	26	-	34900	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Pyrene	3400	160	-	22100000	ug/kg
CG47-012	2084022.572	750788.847	0.5	1.9	Uranium-235	0.1691	-	0.12	8	pCi/g
CG47-013	2084107.641	750828.553	0	0.5	Acenaphthene	81	34	-	40800000	ug/kg
CG47-013	2084107.641	750828.553	0	0.5	Americium-241	1.008	-	0.022700001	76	pCi/g
CG47-013	2084107.641	750828.553	0	0.5	Anthracene	130	26	-	204000000	ug/kg
CG47-013	2084107.641	750828.553	0	0.5	Antimony	0.67	-	0.47	409	mg/kg
CG47-013	2084107.641	750828.553	0	0.5	Benzo(a)anthracene	530	27	-	34900	ug/kg
CG47-013	2084107.641	750828.553	0	0.5	Benzo(a)pyrene	430	44	-	3490	ug/kg
CG47-013	2084107.641	750828.553	0	0.5	Benzo(b)fluoranthene	390	32	-	34900	ug/kg
CG47-013	2084107.641	750828.553	0	0.5	Benzo(k)fluoranthene	420	35	-	349000	ug/kg
CG47-013	2084107.641	750828.553	0	0.5	Benzoic Acid	440	320	-	1000000000	ug/kg
CG47-013	2084107.641	750828.553	0	0.5	bis(2-Ethylhexyl)phthalate	220	80	-	1970000	ug/kg
CG47-013	2084107.641	750828.553	0	0.5	Chromium	19	-	16.98999977	268	mg/kg
CG47-013	2084107.641	750828.553	0	0.5	Chrysene	510	31	-	3490000	ug/kg
CG47-013	2084107.641	750828.553	0	0.5	Copper	46	-	18.05999947	40900	mg/kg
CG47-013	2084107.641	750828.553	0	0.5	Fluoranthene	1200	25	-	27200000	ug/kg
CG47-013	2084107.641	750828.553	0	0.5	Fluorene	59	38	-	40800000	ug/kg
CG47-013	2084107.641	750828.553	0	0.5	Indeno(1,2,3-cd)pyrene	240	25	-	34900	ug/kg
CG47-013	2084107.641	750828.553	0	0.5	Lead	130	-	54.61999893	1000	mg/kg
CG47-013	2084107.641	750828.553	0	0.5	Plutonium-239/240	5.7456	-	0.066	50	pCi/g
CG47-013	2084107.641	750828.553	0	0.5	Pyrene	1000	150	-	22100000	ug/kg
CG47-013	*2084107.641*	*750828.553*	*0*	*0.5*	*Uranium-234*	*2.399*	-	*2.253000021*	*300*	*pCi/g*
CG47-013	2084107.641	750828.553	0	0.5	Uranium-235	0.1722	-	0.093900003	8	pCi/g
CG47-013	2084107.641	750828.553	0	0.5	Uranium-238	2.399	-	2	351	pCi/g
CG47-013	2084107.641	750828.553	0	0.5	Zinc	110	-	73.76000214	307000	mg/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-013	2084107.641	750828.553	0.5	1.5	2-Methylnaphthalene	40	34	-	20400000	ug/kg
CG47-013	2084107.641	750828.553	0.5	1.5	Acenaphthene	240	33	-	40800000	ug/kg
CG47-013	2084107.641	750828.553	0.5	1.5	Anthracene	290	25	-	204000000	ug/kg
CG47-013	2084107.641	750828.553	0.5	1.5	Benzo(a)anthracene	570	26	-	34900	ug/kg
CG47-013	2084107.641	750828.553	0.5	1.5	Benzo(a)pyrene	550	42	-	3490	ug/kg
CG47-013	2084107.641	750828.553	0.5	1.5	Benzo(b)fluoranthene	390	30	-	34900	ug/kg
CG47-013	2084107.641	750828.553	0.5	1.5	Benzo(k)fluoranthene	460	34	-	349000	ug/kg
CG47-013	2084107.641	750828.553	0.5	1.5	Chrysene	620	29	-	3490000	ug/kg
CG47-013	2084107.641	750828.553	0.5	1.5	Dibenzofuran	86	38	-	2950000	ug/kg
CG47-013	2084107.641	750828.553	0.5	1.5	Fluoranthene	1600	24	-	27200000	ug/kg
CG47-013	2084107.641	750828.553	0.5	1.5	Fluorene	180	36	-	40800000	ug/kg
CG47-013	2084107.641	750828.553	0.5	1.5	Indeno(1,2,3-cd)pyrene	370	24	-	34900	ug/kg
CG47-013	2084107.641	750828.553	0.5	1.5	Pyrene	1400	140	-	22100000	ug/kg
CG47-014	2084071.930	750826.943	0	0.5	Acenaphthene	150	33	-	40800000	ug/kg
CG47-014	2084071.930	750826.943	0	0.5	Americium-241	0.4382	-	0.022700001	76	pCi/g
CG47-014	2084071.930	750826.943	0	0.5	Anthracene	180	25	-	204000000	ug/kg
CG47-014	2084071.930	750826.943	0	0.5	Antimony	2.9	-	0.47	409	mg/kg
CG47-014	2084071.930	750826.943	0	0.5	Benzo(a)anthracene	400	26	-	34900	ug/kg
CG47-014	2084071.930	750826.943	0	0.5	Benzo(a)pyrene	400	43	-	3490	ug/kg
CG47-014	2084071.930	750826.943	0	0.5	Benzo(b)fluoranthene	290	31	-	34900	ug/kg
CG47-014	2084071.930	750826.943	0	0.5	Benzo(k)fluoranthene	360	34	-	349000	ug/kg
CG47-014	2084071.930	750826.943	0	0.5	Butylbenzylphthalate	200	70	-	147000000	ug/kg
CG47-014	2084071.930	750826.943	0	0.5	Chromium	27	-	16.98999977	268	mg/kg
CG47-014	2084071.930	750826.943	0	0.5	Chrysene	440	30	-	3490000	ug/kg
CG47-014	2084071.930	750826.943	0	0.5	Copper	80	-	18.05999947	40900	mg/kg
CG47-014	2084071.930	750826.943	0	0.5	Dibenzofuran	56	38	-	2950000	ug/kg
CG47-014	2084071.930	750826.943	0	0.5	Dimethylphthalate	180	43	-	1000000000	ug/kg
CG47-014	2084071.930	750826.943	0	0.5	Fluoranthene	1000	24	-	27200000	ug/kg
CG47-014	2084071.930	750826.943	0	0.5	Fluorene	110	36	-	40800000	ug/kg
CG47-014	2084071.930	750826.943	0	0.5	Indeno(1,2,3-cd)pyrene	270	24	-	34900	ug/kg
CG47-014	2084071.930	750826.943	0	0.5	Iron	20000	-	18037	307000	mg/kg
CG47-014	2084071.930	750826.943	0	0.5	Naphthalene	65	34	-	3090000	ug/kg
CG47-014	2084071.930	750826.943	0	0.5	Nickel	15	-	14.90999985	20400	mg/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-014	2084071.930	750826.943	0	0.5	Plutonium-239/240	2.49774	-	0.066	50	pCi/g
CG47-014	2084071.930	750826.943	0	0.5	Pyrene	910	140	-	22100000	ug/kg
CG47-014	2084071.930	750826.943	0	0.5	Uranium-235	0.2359	-	0.093900003	8	pCi/g
CG47-014	2084071.930	750826.943	0	0.5	Zinc	180	-	73.76000214	307000	mg/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Acenaphthene	63	32	-	40800000	ug/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Anthracene	76	25	-	204000000	ug/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Benzo(a)anthracene	190	26	-	34900	ug/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Benzo(a)pyrene	190	42	-	3490	ug/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Benzo(b)fluoranthene	150	30	-	34900	ug/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Benzo(k)fluoranthene	150	33	-	349000	ug/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Chrysene	200	29	-	3490000	ug/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Dibenz(a,h)anthracene	47	26	-	3490	ug/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Fluoranthene	450	23	-	27200000	ug/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Fluorene	52	35	-	40800000	ug/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Indeno(1,2,3-cd)pyrene	120	23	-	34900	ug/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Pyrene	470	140	-	22100000	ug/kg
CG47-014	2084071.930	750826.943	0.5	2.5	Uranium-238	1.671	-	1.49	351	pCi/g
CG47-015	2084036.221	750822.142	0	0.5	2-Methylnaphthalene	49	34	-	20400000	ug/kg
CG47-015	2084036.221	750822.142	0	0.5	Acenaphthene	330	33	-	40800000	ug/kg
CG47-015	2084036.221	750822.142	0	0.5	Anthracene	370	25	-	204000000	ug/kg
CG47-015	2084036.221	750822.142	0	0.5	Benzo(a)anthracene	830	27	-	34900	ug/kg
CG47-015	2084036.221	750822.142	0	0.5	Benzo(a)pyrene	860	43	-	3490	ug/kg
CG47-015	2084036.221	750822.142	0	0.5	Benzo(b)fluoranthene	640	31	-	34900	ug/kg
CG47-015	2084036.221	750822.142	0	0.5	Benzo(k)fluoranthene	710	34	-	349000	ug/kg
CG47-015	2084036.221	750822.142	0	0.5	Chromium	18	-	16.98999977	268	mg/kg
CG47-015	2084036.221	750822.142	0	0.5	Chrysene	930	30	-	3490000	ug/kg
CG47-015	2084036.221	750822.142	0	0.5	Copper	210	-	18.05999947	40900	mg/kg
CG47-015	2084036.221	750822.142	0	0.5	Dibenz(a,h)anthracene	200	27	-	3490	ug/kg
CG47-015	2084036.221	750822.142	0	0.5	Dibenzofuran	120	39	-	2950000	ug/kg
CG47-015	2084036.221	750822.142	0	0.5	Fluoranthene	2600	24	-	27200000	ug/kg
CG47-015	2084036.221	750822.142	0	0.5	Fluorene	270	37	-	40800000	ug/kg
CG47-015	2084036.221	750822.142	0	0.5	Indeno(1,2,3-cd)pyrene	610	24	-	34900	ug/kg
CG47-015	2084036.221	750822.142	0	0.5	Lead	56	-	54.61999893	1000	mg/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-015	2084036.221	750822.142	0	0.5	Naphthalene	120	34	-	3090000	ug/kg
CG47-015	2084036.221	750822.142	0	0.5	Pyrene	2300	140	-	22100000	ug/kg
CG47-015	2084036.221	750822.142	0	0.5	Tin	3	-	2.9	613000	mg/kg
CG47-015	*2084036.221*	*750822.142*	*0*	*0.5*	*Uranium-234*	*3.317*	-	*2.253000021*	*300*	*pCi/g*
CG47-015	2084036.221	750822.142	0	0.5	Uranium-238	3.317	-	2	351	pCi/g
CG47-015	2084036.221	750822.142	0	0.5	Zinc	140	-	73.76000214	307000	mg/kg
CG47-015	2084036.221	750822.142	0.5	1.8	Arsenic	18	-	13.14	22.2	mg/kg
CG47-015	2084036.221	750822.142	0.5	1.8	Uranium-235	0.1609	-	0.12	8	pCi/g
CG47-015	2084036.221	750822.142	0.5	1.8	Uranium-238	2.488	-	1.49	351	pCi/g
CG47-016	2084034.877	750843.550	0	0.5	Acenaphthene	130	33	-	40800000	ug/kg
CG47-016	2084034.877	750843.550	0	0.5	Anthracene	160	25	-	204000000	ug/kg
CG47-016	2084034.877	750843.550	0	0.5	Antimony	1.3	-	0.47	409	mg/kg
CG47-016	2084034.877	750843.550	0	0.5	Barium	160	-	141.2599945	26400	mg/kg
CG47-016	2084034.877	750843.550	0	0.5	Benzo(a)anthracene	410	26	-	34900	ug/kg
CG47-016	2084034.877	750843.550	0	0.5	Benzo(b)fluoranthene	360	31	-	34900	ug/kg
CG47-016	2084034.877	750843.550	0	0.5	Benzo(k)fluoranthene	420	34	-	349000	ug/kg
CG47-016	2084034.877	750843.550	0	0.5	Cadmium	2.2	-	1.611999989	962	mg/kg
CG47-016	2084034.877	750843.550	0	0.5	Chromium	30	-	16.98999977	268	mg/kg
CG47-016	2084034.877	750843.550	0	0.5	Chrysene	500	30	-	3490000	ug/kg
CG47-016	2084034.877	750843.550	0	0.5	Copper	390	-	18.05999947	40900	mg/kg
CG47-016	2084034.877	750843.550	0	0.5	Dibenz(a,h)anthracene	66	26	-	3490	ug/kg
CG47-016	2084034.877	750843.550	0	0.5	Fluoranthene	1100	24	-	27200000	ug/kg
CG47-016	2084034.877	750843.550	0	0.5	Fluorene	100	36	-	40800000	ug/kg
CG47-016	2084034.877	750843.550	0	0.5	Iron	30000	-	18037	307000	mg/kg
CG47-016	2084034.877	750843.550	0	0.5	Pyrene	960	140	-	22100000	ug/kg
CG47-016	2084034.877	750843.550	0	0.5	Strontium	66	-	48.93999863	613000	mg/kg
CG47-016	2084034.877	750843.550	0	0.5	Uranium-235	0.159	-	0.093900003	8	pCi/g
CG47-016	2084034.877	750843.550	0	0.5	Uranium-238	2.183	-	2	351	pCi/g
CG47-016	2084034.877	750843.550	0	0.5	Zinc	280	-	73.76000214	307000	mg/kg
CG47-016	2084034.877	750843.550	0.5	2.5	Lead	560	-	24.97	1000	mg/kg
CG47-016	2084034.877	750843.550	0.5	2.5	Uranium-235	0.1753	-	0.12	8	pCi/g
CG47-017	2084050.082	750823.800	0	0.5	Aluminum	44000	-	16902	228000	mg/kg
CG47-017	2084050.082	750823.800	0	0.5	Arsenic	15	-	10.09000015	22.2	mg/kg

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Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-017	2084050.082	750823.800	0	0.5	Beryllium	1.9	-	0.966000021	921	mg/kg
CG47-017	2084050.082	750823.800	0	0.5	Chromium	31	-	16.98999977	268	mg/kg
CG47-017	2084050.082	750823.800	0	0.5	Cobalt	34	-	10.90999985	1550	mg/kg
CG47-017	2084050.082	750823.800	0	0.5	Copper	98	-	18.05999947	40900	mg/kg
CG47-017	2084050.082	750823.800	0	0.5	Iron	29000	-	18037	307000	mg/kg
CG47-017	2084050.082	750823.800	0	0.5	Lithium	22	-	11.55000019	20400	mg/kg
CG47-017	2084050.082	750823.800	0	0.5	Mercury	0.18	-	0.134000003	25200	mg/kg
CG47-017	2084050.082	750823.800	0	0.5	Nickel	32	-	14.90999985	20400	mg/kg
CG47-017	2084050.082	750823.800	0	0.5	Strontium	120	-	48.93999863	613000	mg/kg
CG47-017	2084050.082	750823.800	0	0.5	Tin	9.5	-	2.9	613000	mg/kg
CG47-017	2084050.082	750823.800	0	0.5	Uranium-235	0.1242	-	0.093900003	8	pCi/g
CG47-017	2084050.082	750823.800	0	0.5	Vanadium	74	-	45.59000015	7150	mg/kg
CG47-017	2084050.082	750823.800	0.5	0.8	Aluminum	38000	-	35373.17	228000	mg/kg
CG47-017	2084050.082	750823.800	0.5	0.8	Cobalt	37	-	29.04	1550	mg/kg
CG47-017	2084050.082	750823.800	0.5	0.8	Copper	90	-	38.21	40900	mg/kg
CG47-017	2084050.082	750823.800	0.5	0.8	Uranium-235	0.1877	-	0.12	8	pCi/g
CG47-018	2084070.271	750813.344	0	0.5	Acenaphthene	66	33	-	40800000	ug/kg
CG47-018	2084070.271	750813.344	0	0.5	Aluminum	23000	-	16902	228000	mg/kg
CG47-018	2084070.271	750813.344	0	0.5	Anthracene	76	25	-	204000000	ug/kg
CG47-018	2084070.271	750813.344	0	0.5	Antimony	0.78	-	0.47	409	mg/kg
CG47-018	2084070.271	750813.344	0	0.5	Arsenic	11	-	10.09000015	22.2	mg/kg
CG47-018	2084070.271	750813.344	0	0.5	Benzo(a)anthracene	170	26	-	34900	ug/kg
CG47-018	2084070.271	750813.344	0	0.5	Benzo(b)fluoranthene	140	31	-	34900	ug/kg
CG47-018	2084070.271	750813.344	0	0.5	Benzo(k)fluoranthene	180	34	-	349000	ug/kg
CG47-018	2084070.271	750813.344	0	0.5	Beryllium	1.4	-	0.966000021	921	mg/kg
CG47-018	2084070.271	750813.344	0	0.5	Chromium	21	-	16.98999977	268	mg/kg
CG47-018	2084070.271	750813.344	0	0.5	Chrysene	200	29	-	3490000	ug/kg
CG47-018	2084070.271	750813.344	0	0.5	Copper	23	-	18.05999947	40900	mg/kg
CG47-018	2084070.271	750813.344	0	0.5	Fluoranthene	430	24	-	27200000	ug/kg
CG47-018	2084070.271	750813.344	0	0.5	Fluorene	49	36	-	40800000	ug/kg
CG47-018	2084070.271	750813.344	0	0.5	Iron	20000	-	18037	307000	mg/kg
CG47-018	2084070.271	750813.344	0	0.5	Lithium	14	-	11.55000019	20400	mg/kg
CG47-018	2084070.271	750813.344	0	0.5	Nickel	19	-	14.90999985	20400	mg/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-018	2084070.271	750813.344	0	0.5	Pyrene	400	140	-	22100000	ug/kg
CG47-018	2084070.271	750813.344	0	0.5	Vanadium	47	-	45.59000015	7150	mg/kg
CG47-018	2084070.271	750813.344	0.5	2.5	Acenaphthene	54	32	-	40800000	ug/kg
CG47-018	2084070.271	750813.344	0.5	2.5	Anthracene	66	24	-	204000000	ug/kg
CG47-018	2084070.271	750813.344	0.5	2.5	Benzo(a)anthracene	150	25	-	34900	ug/kg
CG47-018	2084070.271	750813.344	0.5	2.5	Benzo(b)fluoranthene	130	30	-	34900	ug/kg
CG47-018	2084070.271	750813.344	0.5	2.5	Benzo(k)fluoranthene	170	33	-	349000	ug/kg
CG47-018	2084070.271	750813.344	0.5	2.5	Chrysene	190	28	-	3490000	ug/kg
CG47-018	2084070.271	750813.344	0.5	2.5	Fluoranthene	410	23	-	27200000	ug/kg
CG47-018	2084070.271	750813.344	0.5	2.5	Fluorene	40	35	-	40800000	ug/kg
CG47-018	2084070.271	750813.344	0.5	2.5	Lead	27	-	24.97	1000	mg/kg
CG47-018	2084070.271	750813.344	0.5	2.5	Pyrene	360	140	-	22100000	ug/kg
CG47-018	2084070.271	750813.344	0.5	2.5	Toluene	9.2	0.82	-	31300000	ug/kg
CG47-019	2084070.230	750777.492	0	0.5	2-Methylnaphthalene	90	36	-	20400000	ug/kg
CG47-019	2084070.230	750777.492	0	0.5	Acenaphthene	610	34	-	40800000	ug/kg
CG47-019	2084070.230	750777.492	0	0.5	Aluminum	22000	-	16902	228000	mg/kg
CG47-019	2084070.230	750777.492	0	0.5	Americium-241	0.5554	-	0.022700001	76	pCi/g
CG47-019	2084070.230	750777.492	0	0.5	Anthracene	650	26	-	204000000	ug/kg
CG47-019	2084070.230	750777.492	0	0.5	Antimony	1.1	-	0.47	409	mg/kg
CG47-019	2084070.230	750777.492	0	0.5	Benzo(a)anthracene	1400	28	-	34900	ug/kg
CG47-019	2084070.230	750777.492	0	0.5	Benzo(a)pyrene	1400	45	-	3490	ug/kg
CG47-019	2084070.230	750777.492	0	0.5	Benzo(b)fluoranthene	1200	32	-	34900	ug/kg
CG47-019	2084070.230	750777.492	0	0.5	Benzo(k)fluoranthene	1200	36	-	349000	ug/kg
CG47-019	2084070.230	750777.492	0	0.5	Beryllium	1.2	-	0.966000021	921	mg/kg
CG47-019	2084070.230	750777.492	0	0.5	Chromium	30	-	16.98999977	268	mg/kg
CG47-019	2084070.230	750777.492	0	0.5	Chrysene	1600	31	-	3490000	ug/kg
CG47-019	2084070.230	750777.492	0	0.5	Copper	170	-	18.05999947	40900	mg/kg
CG47-019	2084070.230	750777.492	0	0.5	Dibenzofuran	220	40	-	2950000	ug/kg
CG47-019	2084070.230	750777.492	0	0.5	Fluoranthene	4300	25	-	27200000	ug/kg
CG47-019	2084070.230	750777.492	0	0.5	Fluorene	470	38	-	40800000	ug/kg
CG47-019	2084070.230	750777.492	0	0.5	Iron	19000	-	18037	307000	mg/kg
CG47-019	2084070.230	750777.492	0	0.5	Lithium	15	-	11.55000019	20400	mg/kg
CG47-019	2084070.230	750777.492	0	0.5	Mercury	0.14	-	0.134000003	25200	mg/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-019	2084070.230	750777.492	0	0.5	Naphthalene	230	36	-	3090000	ug/kg
CG47-019	2084070.230	750777.492	0	0.5	Nickel	18	-	14.90999985	20400	mg/kg
CG47-019	2084070.230	750777.492	0	0.5	Plutonium-239/240	3.16578	-	0.066	50	pCi/g
CG47-019	2084070.230	750777.492	0	0.5	Pyrene	3600	150	-	22100000	ug/kg
CG47-019	*2084070.230*	*750777.492*	*0*	*0.5*	*Uranium-234*	*6.039*	-	*2.253000021*	*300*	*pCi/g*
CG47-019	2084070.230	750777.492	0	0.5	Uranium-235	0.2309	-	0.093900003	8	pCi/g
CG47-019	2084070.230	750777.492	0	0.5	Uranium-238	6.039	-	2	351	pCi/g
CG47-019	2084070.230	750777.492	0	0.5	Zinc	230	-	73.76000214	307000	mg/kg
CG47-019	2084070.230	750777.492	0.5	2.5	Acenaphthene	38	32	-	40800000	ug/kg
CG47-019	2084070.230	750777.492	0.5	2.5	Anthracene	41	25	-	204000000	ug/kg
CG47-019	2084070.230	750777.492	0.5	2.5	Benzo(a)anthracene	91	26	-	34900	ug/kg
CG47-019	2084070.230	750777.492	0.5	2.5	Benzo(b)fluoranthene	87	30	-	34900	ug/kg
CG47-019	2084070.230	750777.492	0.5	2.5	Benzo(k)fluoranthene	88	33	-	349000	ug/kg
CG47-019	2084070.230	750777.492	0.5	2.5	Chrysene	110	29	-	3490000	ug/kg
CG47-019	2084070.230	750777.492	0.5	2.5	Fluoranthene	240	24	-	27200000	ug/kg
CG47-019	2084070.230	750777.492	0.5	2.5	Pyrene	210	140	-	22100000	ug/kg
CG47-019	2084070.230	750777.492	0.5	2.5	Uranium-235	0.1773	-	0.12	8	pCi/g
CG47-020	2084055.545	750773.384	0	0.5	Aluminum	31000	-	16902	228000	mg/kg
CG47-020	2084055.545	750773.384	0	0.5	Beryllium	1.6	-	0.966000021	921	mg/kg
CG47-020	2084055.545	750773.384	0	0.5	Chromium	75	-	16.98999977	268	mg/kg
CG47-020	2084055.545	750773.384	0	0.5	Iron	20000	-	18037	307000	mg/kg
CG47-020	2084055.545	750773.384	0	0.5	Lithium	16	-	11.55000019	20400	mg/kg
CG47-020	2084055.545	750773.384	0	0.5	Mercury	0.14	-	0.134000003	25200	mg/kg
CG47-020	2084055.545	750773.384	0	0.5	Nickel	45	-	14.90999985	20400	mg/kg
CG47-020	2084055.545	750773.384	0.5	1.5	Aluminum	41000	-	35373.17	228000	mg/kg
CG47-020	*2084055.545*	*750773.384*	*0.5*	*1.5*	*Uranium-234*	*5.148*	-	*2.64*	*300*	*pCi/g*
CG47-020	2084055.545	750773.384	0.5	1.5	Uranium-235	0.3905	-	0.12	8	pCi/g
CG47-020	2084055.545	750773.384	0.5	1.5	Uranium-238	5.148	-	1.49	351	pCi/g
CG47-022	2084105.490	750785.288	0	0.5	Acenaphthene	180	33	-	40800000	ug/kg
CG47-022	2084105.490	750785.288	0	0.5	Aluminum	21000	-	16902	228000	mg/kg
CG47-022	2084105.490	750785.288	0	0.5	Anthracene	200	25	-	204000000	ug/kg
CG47-022	2084105.490	750785.288	0	0.5	Antimony	1.3	-	0.47	409	mg/kg
CG47-022	2084105.490	750785.288	0	0.5	Arsenic	18	-	10.09000015	22.2	mg/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-022	2084105.490	750785.288	0	0.5	Benzo(a)anthracene	480	26	-	34900	ug/kg
CG47-022	2084105.490	750785.288	0	0.5	Benzo(b)fluoranthene	430	31	-	34900	ug/kg
CG47-022	2084105.490	750785.288	0	0.5	Benzo(k)fluoranthene	470	34	-	349000	ug/kg
CG47-022	2084105.490	750785.288	0	0.5	Beryllium	1.2	-	0.966000021	921	mg/kg
CG47-022	2084105.490	750785.288	0	0.5	Butylbenzylphthalate	150	70	-	147000000	ug/kg
CG47-022	2084105.490	750785.288	0	0.5	Cadmium	4.9	-	1.611999989	962	mg/kg
CG47-022	2084105.490	750785.288	0	0.5	Chromium	39	-	16.98999977	268	mg/kg
CG47-022	2084105.490	750785.288	0	0.5	Chrysene	560	30	-	3490000	ug/kg
CG47-022	2084105.490	750785.288	0	0.5	Copper	180	-	18.05999947	40900	mg/kg
CG47-022	2084105.490	750785.288	0	0.5	Fluoranthene	1300	24	-	27200000	ug/kg
CG47-022	2084105.490	750785.288	0	0.5	Fluorene	130	36	-	40800000	ug/kg
CG47-022	2084105.490	750785.288	0	0.5	Iron	22000	-	18037	307000	mg/kg
CG47-022	2084105.490	750785.288	0	0.5	Lead	71	-	54.61999893	1000	mg/kg
CG47-022	2084105.490	750785.288	0	0.5	Lithium	15	-	11.55000019	20400	mg/kg
CG47-022	2084105.490	750785.288	0	0.5	Mercury	0.18	-	0.134000003	25200	mg/kg
CG47-022	2084105.490	750785.288	0	0.5	Naphthalene	54	34	-	3090000	ug/kg
CG47-022	2084105.490	750785.288	0	0.5	Nickel	21	-	14.90999985	20400	mg/kg
CG47-022	2084105.490	750785.288	0	0.5	Pyrene	1200	140	-	22100000	ug/kg
CG47-022	*2084105.490*	*750785.288*	*0*	*0.5*	*Uranium-234*	*4.573*	-	*2.253000021*	*300*	*pCi/g*
CG47-022	2084105.490	750785.288	0	0.5	Uranium-238	4.573	-	2	351	pCi/g
CG47-022	2084105.490	750785.288	0	0.5	Zinc	280	-	73.76000214	307000	mg/kg
CG47-022	2084105.490	750785.288	0.5	2.5	2-Methylnaphthalene	160	38	-	20400000	ug/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Acenaphthene	910	37	-	40800000	ug/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Anthracene	980	28	-	204000000	ug/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Arsenic	15	-	13.14	22.2	mg/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Benzo(a)anthracene	1700	29	-	34900	ug/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Benzo(a)pyrene	1600	48	-	3490	ug/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Benzo(b)fluoranthene	1300	34	-	34900	ug/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Benzo(k)fluoranthene	1400	38	-	349000	ug/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Cadmium	2.4	-	1.7	962	mg/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Chrysene	1900	33	-	3490000	ug/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Copper	80	-	38.21	40900	mg/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Dibenzofuran	360	43	-	2950000	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-022	2084105.490	750785.288	0.5	2.5	Fluoranthene	5600	27	-	27200000	ug/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Fluorene	740	40	-	40800000	ug/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Lead	29	-	24.97	1000	mg/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Pyrene	4500	160	-	22100000	ug/kg
CG47-022	2084105.490	750785.288	0.5	2.5	Uranium-235	0.1433	-	0.12	8	pCi/g
CG47-023	2084110.514	750781.726	0	0.5	Acenaphthene	58	36	-	40800000	ug/kg
CG47-023	2084110.514	750781.726	0	0.5	Aluminum	25000	-	16902	228000	mg/kg
CG47-023	2084110.514	750781.726	0	0.5	Anthracene	200	28	-	204000000	ug/kg
CG47-023	2084110.514	750781.726	0	0.5	Benzo(a)anthracene	140	29	-	34900	ug/kg
CG47-023	2084110.514	750781.726	0	0.5	Benzo(a)pyrene	150	47	-	3490	ug/kg
CG47-023	2084110.514	750781.726	0	0.5	Benzo(b)fluoranthene	210	34	-	34900	ug/kg
CG47-023	2084110.514	750781.726	0	0.5	Benzo(k)fluoranthene	140	37	-	349000	ug/kg
CG47-023	2084110.514	750781.726	0	0.5	Beryllium	1.3	-	0.966000021	921	mg/kg
CG47-023	2084110.514	750781.726	0	0.5	bis(2-Ethylhexyl)phthalate	130	84	-	1970000	ug/kg
CG47-023	2084110.514	750781.726	0	0.5	Chromium	26	-	16.98999977	268	mg/kg
CG47-023	2084110.514	750781.726	0	0.5	Chrysene	160	32	-	3490000	ug/kg
CG47-023	2084110.514	750781.726	0	0.5	Cobalt	12	-	10.90999985	1550	mg/kg
CG47-023	2084110.514	750781.726	0	0.5	Copper	38	-	18.05999947	40900	mg/kg
CG47-023	2084110.514	750781.726	0	0.5	Di-n-butylphthalate	140	24	-	73700000	ug/kg
CG47-023	2084110.514	750781.726	0	0.5	Fluoranthene	530	26	-	27200000	ug/kg
CG47-023	2084110.514	750781.726	0	0.5	Fluorene	42	40	-	40800000	ug/kg
CG47-023	2084110.514	750781.726	0	0.5	Indeno(1,2,3-cd)pyrene	100	26	-	34900	ug/kg
CG47-023	2084110.514	750781.726	0	0.5	Iron	20000	-	18037	307000	mg/kg
CG47-023	2084110.514	750781.726	0	0.5	Lithium	16	-	11.55000019	20400	mg/kg
CG47-023	2084110.514	750781.726	0	0.5	Manganese	530	-	365.0799866	3480	mg/kg
CG47-023	2084110.514	750781.726	0	0.5	Mercury	0.32	-	0.134000003	25200	mg/kg
CG47-023	2084110.514	750781.726	0	0.5	Nickel	27	-	14.90999985	20400	mg/kg
CG47-023	2084110.514	750781.726	0	0.5	Pyrene	500	160	-	22100000	ug/kg
CG47-023	2084110.514	750781.726	0	0.5	Strontium	51	-	48.93999863	613000	mg/kg
CG47-023	2084110.514	750781.726	0	0.5	Vanadium	49	-	45.59000015	7150	mg/kg
CG47-023	2084110.514	750781.726	0	0.5	Zinc	81	-	73.76000214	307000	mg/kg
CG47-023	2084110.514	750781.726	0.5	2.0	Anthracene	130	25	-	204000000	ug/kg
CG47-023	2084110.514	750781.726	0.5	2.0	Benzo(b)fluoranthene	100	31	-	34900	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-023	2084110.514	750781.726	0.5	2.0	bis(2-Ethylhexyl)phthalate	93	76	-	1970000	ug/kg
CG47-023	2084110.514	750781.726	0.5	2.0	Fluoranthene	210	24	-	27200000	ug/kg
CG47-023	2084110.514	750781.726	0.5	2.0	Pyrene	180	140	-	22100000	ug/kg
CG47-023	2084110.514	750781.726	0.5	2.0	Uranium-235	0.227	-	0.12	8	pCi/g
CG47-023	2084110.514	750781.726	0.5	2.0	Uranium-238	2.363	-	1.49	351	pCi/g
CG47-024	2084110.432	750797.292	0	0.5	Acenaphthene	100	33	-	40800000	ug/kg
CG47-024	2084110.432	750797.292	0	0.5	Anthracene	97	25	-	204000000	ug/kg
CG47-024	**2084110.432**	**750797.292**	**0**	**0.5**	**Arsenic**	**32**	**-**	**10.09000015**	**22.2**	**mg/kg**
CG47-024	2084110.432	750797.292	0	0.5	Benzo(a)anthracene	180	26	-	34900	ug/kg
CG47-024	2084110.432	750797.292	0	0.5	bis(2-Ethylhexyl)phthalate	140	77	-	1970000	ug/kg
CG47-024	2084110.432	750797.292	0	0.5	Chromium	83	-	16.98999977	268	mg/kg
CG47-024	2084110.432	750797.292	0	0.5	Chrysene	180	30	-	3490000	ug/kg
CG47-024	2084110.432	750797.292	0	0.5	Copper	130	-	18.05999947	40900	mg/kg
CG47-024	2084110.432	750797.292	0	0.5	Dibenzofuran	46	38	-	2950000	ug/kg
CG47-024	2084110.432	750797.292	0	0.5	Di-n-butylphthalate	170	22	-	73700000	ug/kg
CG47-024	2084110.432	750797.292	0	0.5	Fluoranthene	520	24	-	27200000	ug/kg
CG47-024	2084110.432	750797.292	0	0.5	Fluorene	73	36	-	40800000	ug/kg
CG47-024	2084110.432	750797.292	0	0.5	Pyrene	400	140	-	22100000	ug/kg
CG47-024	2084110.432	750797.292	0	0.5	Strontium	97	-	48.93999863	613000	mg/kg
CG47-024	*2084110.432*	*750797.292*	*0*	*0.5*	*Uranium-234*	*4.955*	-	*2.253000021*	*300*	*pCi/g*
CG47-024	2084110.432	750797.292	0	0.5	Uranium-238	4.955	-	2	351	pCi/g
CG47-024	2084110.432	750797.292	0	0.5	Zinc	140	-	73.76000214	307000	mg/kg
CG47-024	2084110.432	750797.292	0.5	1.5	Anthracene	54	26	-	204000000	ug/kg
CG47-024	2084110.432	750797.292	0.5	1.5	Benzo(a)anthracene	120	27	-	34900	ug/kg
CG47-024	2084110.432	750797.292	0.5	1.5	Benzo(a)pyrene	120	44	-	3490	ug/kg
CG47-024	2084110.432	750797.292	0.5	1.5	Benzo(b)fluoranthene	100	32	-	34900	ug/kg
CG47-024	2084110.432	750797.292	0.5	1.5	Benzo(k)fluoranthene	93	35	-	349000	ug/kg
CG47-024	2084110.432	750797.292	0.5	1.5	bis(2-Ethylhexyl)phthalate	120	79	-	1970000	ug/kg
CG47-024	2084110.432	750797.292	0.5	1.5	Chrysene	120	31	-	3490000	ug/kg
CG47-024	2084110.432	750797.292	0.5	1.5	Copper	75	-	38.21	40900	mg/kg
CG47-024	2084110.432	750797.292	0.5	1.5	Di-n-butylphthalate	1400	23	-	73700000	ug/kg
CG47-024	2084110.432	750797.292	0.5	1.5	Fluoranthene	310	25	-	27200000	ug/kg
CG47-024	2084110.432	750797.292	0.5	1.5	Pyrene	250	150	-	22100000	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-024	2084110.432	750797.292	0.5	1.5	Uranium-238	2.288	-	1.49	351	pCi/g
CG47-025	2084104.893	750802.970	0	0.5	Acenaphthene	210	39	-	40800000	ug/kg
CG47-025	2084104.893	750802.970	0	0.5	Aluminum	20000	-	16902	228000	mg/kg
CG47-025	2084104.893	750802.970	0	0.5	Americium-241	0.5782	-	0.022700001	76	pCi/g
CG47-025	2084104.893	750802.970	0	0.5	Anthracene	240	30	-	204000000	ug/kg
CG47-025	2084104.893	750802.970	0	0.5	Antimony	3.2	-	0.47	409	mg/kg
CG47-025	**2084104.893**	**750802.970**	**0**	**0.5**	**Arsenic***	**97**	**-**	**10.09000015**	**22.2**	**mg/kg**
CG47-025	2084104.893	750802.970	0	0.5	Barium	250	-	141.2599945	26400	mg/kg
CG47-025	2084104.893	750802.970	0	0.5	Benzo(a)anthracene	580	31	-	34900	ug/kg
CG47-025	2084104.893	750802.970	0	0.5	Benzo(b)fluoranthene	510	36	-	34900	ug/kg
CG47-025	2084104.893	750802.970	0	0.5	Benzo(k)fluoranthene	650	40	-	349000	ug/kg
CG47-025	2084104.893	750802.970	0	0.5	bis(2-Ethylhexyl)phthalate	350	90	-	1970000	ug/kg
CG47-025	2084104.893	750802.970	0	0.5	Cadmium	8.4	-	1.611999989	962	mg/kg
CG47-025	2084104.893	750802.970	0	0.5	Chromium	210	-	16.98999977	268	mg/kg
CG47-025	2084104.893	750802.970	0	0.5	Chrysene	700	35	-	3490000	ug/kg
CG47-025	2084104.893	750802.970	0	0.5	Copper	1600	-	18.05999947	40900	mg/kg
CG47-025	2084104.893	750802.970	0	0.5	Fluoranthene	1700	28	-	27200000	ug/kg
CG47-025	2084104.893	750802.970	0	0.5	Fluorene	140	42	-	40800000	ug/kg
CG47-025	2084104.893	750802.970	0	0.5	Iron	61000	-	18037	307000	mg/kg
CG47-025	2084104.893	750802.970	0	0.5	Lead	970	-	54.61999893	1000	mg/kg
CG47-025	2084104.893	750802.970	0	0.5	Lithium	16	-	11.55000019	20400	mg/kg
CG47-025	2084104.893	750802.970	0	0.5	Manganese	570	-	365.0799866	3480	mg/kg
CG47-025	2084104.893	750802.970	0	0.5	Mercury	0.62	-	0.134000003	25200	mg/kg
CG47-025	2084104.893	750802.970	0	0.5	Naphthalene	69	40	-	3090000	ug/kg
CG47-025	2084104.893	750802.970	0	0.5	Nickel	26	-	14.90999985	20400	mg/kg
CG47-025	2084104.893	750802.970	0	0.5	Plutonium-239/240	3.29574	-	0.066	50	pCi/g
CG47-025	2084104.893	750802.970	0	0.5	Pyrene	1400	170	-	22100000	ug/kg
CG47-025	2084104.893	750802.970	0	0.5	Strontium	150	-	48.93999863	613000	mg/kg
CG47-025	*2084104.893*	*750802.970*	*0*	*0.5*	*Uranium-234*	*7.568*	-	*2.253000021*	*300*	*pCi/g*
CG47-025	2084104.893	750802.970	0	0.5	Uranium-238	7.568	-	2	351	pCi/g
CG47-025	2084104.893	750802.970	0	0.5	Vanadium	47	-	45.59000015	7150	mg/kg
CG47-025	2084104.893	750802.970	0	0.5	Zinc	1200	-	73.76000214	307000	mg/kg
CG47-025	2084104.893	750802.970	0.5	2.5	Acenaphthene	42	34	-	40800000	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-025	2084104.893	750802.970	0.5	2.5	Anthracene	62	26	-	204000000	ug/kg
CG47-025	2084104.893	750802.970	0.5	2.5	Arsenic	15	-	13.14	22.2	mg/kg
CG47-025	2084104.893	750802.970	0.5	2.5	Benzo(a)anthracene	110	27	-	34900	ug/kg
CG47-025	2084104.893	750802.970	0.5	2.5	Benzo(b)fluoranthene	93	32	-	34900	ug/kg
CG47-025	2084104.893	750802.970	0.5	2.5	Benzo(k)fluoranthene	120	35	-	349000	ug/kg
CG47-025	2084104.893	750802.970	0.5	2.5	Chrysene	140	31	-	3490000	ug/kg
CG47-025	2084104.893	750802.970	0.5	2.5	Copper	160	-	38.21	40900	mg/kg
CG47-025	2084104.893	750802.970	0.5	2.5	Fluoranthene	310	25	-	27200000	ug/kg
CG47-025	2084104.893	750802.970	0.5	2.5	Lead	70	-	24.97	1000	mg/kg
CG47-025	2084104.893	750802.970	0.5	2.5	Pyrene	270	150	-	22100000	ug/kg
CG47-025	2084104.893	750802.970	0.5	2.5	Uranium-235	0.1822	-	0.12	8	pCi/g
CG47-026	2084100.828	750789.282	0	0.5	Acenaphthene	110	36	-	40800000	ug/kg
CG47-026	2084100.828	750789.282	0	0.5	Aluminum	25000	-	16902	228000	mg/kg
CG47-026	2084100.828	750789.282	0	0.5	Anthracene	140	27	-	204000000	ug/kg
CG47-026	2084100.828	750789.282	0	0.5	Antimony	1.5	-	0.47	409	mg/kg
CG47-026	2084100.828	750789.282	0	0.5	Arsenic	13	-	10.09000015	22.2	mg/kg
CG47-026	2084100.828	750789.282	0	0.5	Benzo(a)anthracene	320	28	-	34900	ug/kg
CG47-026	2084100.828	750789.282	0	0.5	Benzo(a)pyrene	340	46	-	3490	ug/kg
CG47-026	2084100.828	750789.282	0	0.5	Benzo(b)fluoranthene	200	33	-	34900	ug/kg
CG47-026	2084100.828	750789.282	0	0.5	Benzo(k)fluoranthene	310	37	-	349000	ug/kg
CG47-026	2084100.828	750789.282	0	0.5	Beryllium	1.2	-	0.966000021	921	mg/kg
CG47-026	2084100.828	750789.282	0	0.5	Chromium	33	-	16.98999977	268	mg/kg
CG47-026	2084100.828	750789.282	0	0.5	Chrysene	370	32	-	3490000	ug/kg
CG47-026	2084100.828	750789.282	0	0.5	Copper	82	-	18.05999947	40900	mg/kg
CG47-026	2084100.828	750789.282	0	0.5	Dibenzofuran	50	42	-	2950000	ug/kg
CG47-026	2084100.828	750789.282	0	0.5	Fluoranthene	890	26	-	27200000	ug/kg
CG47-026	2084100.828	750789.282	0	0.5	Fluorene	82	39	-	40800000	ug/kg
CG47-026	2084100.828	750789.282	0	0.5	Iron	20000	-	18037	307000	mg/kg
CG47-026	2084100.828	750789.282	0	0.5	Lithium	15	-	11.55000019	20400	mg/kg
CG47-026	2084100.828	750789.282	0	0.5	Nickel	19	-	14.90999985	20400	mg/kg
CG47-026	2084100.828	750789.282	0	0.5	Pyrene	790	150	-	22100000	ug/kg
CG47-026	2084100.828	750789.282	0	0.5	Uranium-235	0.2085	-	0.093900003	8	pCi/g
CG47-026	2084100.828	750789.282	0	0.5	Uranium-238	2.096	-	2	351	pCi/g

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-026	2084100.828	750789.282	0	0.5	Vanadium	46	-	45.59000015	7150	mg/kg
CG47-026	2084100.828	750789.282	0	0.5	Zinc	160	-	73.76000214	307000	mg/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Acenaphthene	100	36	-	40800000	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Anthracene	170	28	-	204000000	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Arsenic	19	-	13.14	22.2	mg/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Benzo(a)anthracene	550	29	-	34900	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Benzo(a)pyrene	530	47	-	3490	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Benzo(b)fluoranthene	570	34	-	34900	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Benzo(k)fluoranthene	430	38	-	349000	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Butylbenzylphthalate	100	78	-	147000000	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Chrysene	580	33	-	3490000	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Copper	150	-	38.21	40900	mg/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Di-n-butylphthalate	81	24	-	73700000	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Fluoranthene	1400	27	-	27200000	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Fluorene	87	40	-	40800000	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Lead	28	-	24.97	1000	mg/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Pyrene	1200	160	-	22100000	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Toluene	6.87	6.23	-	31300000	ug/kg
CG47-026	2084100.828	750789.282	0.5	1.5	Zinc	410	-	139.1	307000	mg/kg
CG47-027	2084119.681	750799.746	0	0.5	Benzo(a)anthracene	62	27	-	34900	ug/kg
CG47-027	2084119.681	750799.746	0	0.5	Benzyl Alcohol	240	92	-	307000000	ug/kg
CG47-027	2084119.681	750799.746	0	0.5	bis(2-Ethylhexyl)phthalate	310	77	-	1970000	ug/kg
CG47-027	2084119.681	750799.746	0	0.5	Chrysene	83	30	-	3490000	ug/kg
CG47-027	2084119.681	750799.746	0	0.5	Copper	19	-	18.05999947	40900	mg/kg
CG47-027	2084119.681	750799.746	0	0.5	Di-n-butylphthalate	260	22	-	73700000	ug/kg
CG47-027	2084119.681	750799.746	0	0.5	Fluoranthene	150	24	-	27200000	ug/kg
CG47-027	2084119.681	750799.746	0	0.5	Pyrene	150	140	-	22100000	ug/kg
CG47-027	2084119.681	750799.746	0	0.5	Strontium	51	-	48.93999863	613000	mg/kg
CG47-027	2084119.681	750799.746	0	0.5	Uranium-235	0.1486	-	0.093900003	8	pCi/g
CG47-027	2084119.681	750799.746	0.5	2.5	Acenaphthene	55	34	-	40800000	ug/kg
CG47-027	2084119.681	750799.746	0.5	2.5	Anthracene	62	26	-	204000000	ug/kg
CG47-027	2084119.681	750799.746	0.5	2.5	Benzo(a)anthracene	140	27	-	34900	ug/kg
CG47-027	2084119.681	750799.746	0.5	2.5	Benzo(a)pyrene	160	44	-	3490	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-027	2084119.681	750799.746	0.5	2.5	Benzo(b)fluoranthene	120	31	-	34900	ug/kg
CG47-027	2084119.681	750799.746	0.5	2.5	Benzo(k)fluoranthene	120	35	-	349000	ug/kg
CG47-027	2084119.681	750799.746	0.5	2.5	Chrysene	160	30	-	3490000	ug/kg
CG47-027	2084119.681	750799.746	0.5	2.5	Fluoranthene	360	25	-	27200000	ug/kg
CG47-027	2084119.681	750799.746	0.5	2.5	Fluorene	38	37	-	40800000	ug/kg
CG47-027	2084119.681	750799.746	0.5	2.5	Indeno(1,2,3-cd)pyrene	72	25	-	34900	ug/kg
CG47-027	2084119.681	750799.746	0.5	2.5	Pyrene	350	150	-	22100000	ug/kg
CG47-027	2084119.681	750799.746	0.5	2.5	Uranium-235	0.1323	-	0.12	8	pCi/g
CG47-028	2084125.516	750762.018	0	0.5	Acenaphthene	98	33	-	40800000	ug/kg
CG47-028	2084125.516	750762.018	0	0.5	Anthracene	230	25	-	204000000	ug/kg
CG47-028	2084125.516	750762.018	0	0.5	Benzo(a)anthracene	220	26	-	34900	ug/kg
CG47-028	2084125.516	750762.018	0	0.5	Benzo(a)pyrene	210	43	-	3490	ug/kg
CG47-028	2084125.516	750762.018	0	0.5	Benzo(b)fluoranthene	280	31	-	34900	ug/kg
CG47-028	2084125.516	750762.018	0	0.5	Benzo(k)fluoranthene	180	34	-	349000	ug/kg
CG47-028	2084125.516	750762.018	0	0.5	Chrysene	230	30	-	3490000	ug/kg
CG47-028	2084125.516	750762.018	0	0.5	Copper	20	-	18.05999947	40900	mg/kg
CG47-028	2084125.516	750762.018	0	0.5	Dibenz(a,h)anthracene	56	26	-	3490	ug/kg
CG47-028	2084125.516	750762.018	0	0.5	Fluoranthene	720	24	-	27200000	ug/kg
CG47-028	2084125.516	750762.018	0	0.5	Fluorene	68	36	-	40800000	ug/kg
CG47-028	2084125.516	750762.018	0	0.5	Indeno(1,2,3-cd)pyrene	130	24	-	34900	ug/kg
CG47-028	2084125.516	750762.018	0	0.5	Pyrene	700	140	-	22100000	ug/kg
CG47-028	*2084125.516*	*750762.018*	*0*	*0.5*	*Uranium-234*	*2.897*	-	*2.253000021*	*300*	*pCi/g*
CG47-028	2084125.516	750762.018	0	0.5	Uranium-235	0.2015	-	0.093900003	8	pCi/g
CG47-028	2084125.516	750762.018	0	0.5	Uranium-238	2.897	-	2	351	pCi/g
CG47-028	2084125.516	750762.018	0.5	2.0	2-Methylnaphthalene	45	37	-	20400000	ug/kg
CG47-028	2084125.516	750762.018	0.5	2.0	Acenaphthene	250	36	-	40800000	ug/kg
CG47-028	2084125.516	750762.018	0.5	2.0	Anthracene	390	27	-	204000000	ug/kg
CG47-028	2084125.516	750762.018	0.5	2.0	Benzo(a)anthracene	510	28	-	34900	ug/kg
CG47-028	2084125.516	750762.018	0.5	2.0	Benzo(a)pyrene	520	46	-	3490	ug/kg
CG47-028	2084125.516	750762.018	0.5	2.0	Benzo(b)fluoranthene	500	33	-	34900	ug/kg
CG47-028	2084125.516	750762.018	0.5	2.0	Benzo(k)fluoranthene	460	37	-	349000	ug/kg
CG47-028	2084125.516	750762.018	0.5	2.0	bis(2-Ethylhexyl)phthalate	100	83	-	1970000	ug/kg
CG47-028	2084125.516	750762.018	0.5	2.0	Chrysene	570	32	-	3490000	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-028	2084125.516	750762.018	0.5	2.0	Dibenz(a,h)anthracene	120	28	-	3490	ug/kg
CG47-028	2084125.516	750762.018	0.5	2.0	Dibenzofuran	87	42	-	2950000	ug/kg
CG47-028	2084125.516	750762.018	0.5	2.0	Fluoranthene	1600	26	-	27200000	ug/kg
CG47-028	2084125.516	750762.018	0.5	2.0	Fluorene	200	39	-	40800000	ug/kg
CG47-028	2084125.516	750762.018	0.5	2.0	Indeno(1,2,3-cd)pyrene	340	26	-	34900	ug/kg
CG47-028	2084125.516	750762.018	0.5	2.0	Pyrene	1500	150	-	22100000	ug/kg
CG47-028	2084125.516	750762.018	0.5	2.0	Uranium, Total	3.7	-	3.04	2750	mg/kg
CG47-028	*2084125.516*	*750762.018*	*0.5*	*2.0*	*Uranium-234*	*4.32*	-	*2.64*	*300*	*pCi/g*
CG47-028	2084125.516	750762.018	0.5	2.0	Uranium-235	0.276	-	0.12	8	pCi/g
CG47-028	2084125.516	750762.018	0.5	2.0	Uranium-238	4.32	-	1.49	351	pCi/g
CH47-007	2084149.033	750773.828	0	0.5	2-Methylnaphthalene	260	34	-	20400000	ug/kg
CH47-007	2084149.033	750773.828	0	0.5	Acenaphthene	1300	33	-	40800000	ug/kg
CH47-007	2084149.033	750773.828	0	0.5	Aluminum	20000	-	16902	228000	mg/kg
CH47-007	2084149.033	750773.828	0	0.5	Anthracene	1800	25	-	204000000	ug/kg
CH47-007	2084149.033	750773.828	0	0.5	Antimony	0.92	-	0.47	409	mg/kg
CH47-007	2084149.033	750773.828	0	0.5	Arsenic	18	-	10.09000015	22.2	mg/kg
CH47-007	2084149.033	750773.828	0	0.5	Benzo(a)anthracene	2900	26	-	34900	ug/kg
CH47-007	2084149.033	750773.828	0	0.5	Benzo(a)pyrene	2400	42	-	3490	ug/kg
CH47-007	2084149.033	750773.828	0	0.5	Benzo(b)fluoranthene	1700	30	-	34900	ug/kg
CH47-007	2084149.033	750773.828	0	0.5	Benzo(k)fluoranthene	2100	34	-	349000	ug/kg
CH47-007	2084149.033	750773.828	0	0.5	Beryllium	1.6	-	0.966000021	921	mg/kg
CH47-007	2084149.033	750773.828	0	0.5	bis(2-Ethylhexyl)phthalate	170	76	-	1970000	ug/kg
CH47-007	2084149.033	750773.828	0	0.5	Chromium	24	-	16.98999977	268	mg/kg
CH47-007	2084149.033	750773.828	0	0.5	Chrysene	3000	29	-	3490000	ug/kg
CH47-007	2084149.033	750773.828	0	0.5	Copper	67	-	18.05999947	40900	mg/kg
CH47-007	2084149.033	750773.828	0	0.5	Dibenz(a,h)anthracene	570	26	-	3490	ug/kg
CH47-007	2084149.033	750773.828	0	0.5	Dibenzofuran	580	38	-	2950000	ug/kg
CH47-007	2084149.033	750773.828	0	0.5	Fluoranthene	6400	96	-	27200000	ug/kg
CH47-007	2084149.033	750773.828	0	0.5	Fluorene	1100	36	-	40800000	ug/kg
CH47-007	2084149.033	750773.828	0	0.5	Indeno(1,2,3-cd)pyrene	1600	24	-	34900	ug/kg
CH47-007	2084149.033	750773.828	0	0.5	Iron	21000	-	18037	307000	mg/kg
CH47-007	2084149.033	750773.828	0	0.5	Lithium	19	-	11.55000019	20400	mg/kg
CH47-007	2084149.033	750773.828	0	0.5	Naphthalene	710	34	-	3090000	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CH47-007	2084149.033	750773.828	0	0.5	Nickel	20	-	14.90999985	20400	mg/kg
CH47-007	2084149.033	750773.828	0	0.5	Pyrene	5900	560	-	22100000	ug/kg
CH47-007	2084149.033	750773.828	0	0.5	Vanadium	74	-	45.59000015	7150	mg/kg
CH47-007	2084149.033	750773.828	0	0.5	Zinc	84	-	73.76000214	307000	mg/kg
CH47-007	2084149.033	750773.828	0.5	2.5	2-Methylnaphthalene	110	36	-	20400000	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Acenaphthene	660	35	-	40800000	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Anthracene	730	27	-	204000000	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Arsenic	15	-	13.14	22.2	mg/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Benzo(a)anthracene	1300	28	-	34900	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Benzo(a)pyrene	1200	45	-	3490	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Benzo(b)fluoranthene	830	32	-	34900	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Benzo(k)fluoranthene	1100	36	-	349000	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Chrysene	1400	31	-	3490000	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Copper	50	-	38.21	40900	mg/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Dibenz(a,h)anthracene	290	28	-	3490	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Dibenzofuran	240	40	-	2950000	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Fluoranthene	3900	25	-	27200000	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Fluorene	490	38	-	40800000	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Indeno(1,2,3-cd)pyrene	850	25	-	34900	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Pyrene	3400	150	-	22100000	ug/kg
CH47-007	2084149.033	750773.828	0.5	2.5	Uranium-235	0.1426	-	0.12	8	pCi/g
CH47-007	2084149.033	750773.828	0.5	2.5	Uranium-238	1.778	-	1.49	351	pCi/g
CH47-008	2084143.221	750836.515	0	0.5	2-Methylnaphthalene	89	34	-	20400000	ug/kg
CH47-008	2084143.221	750836.515	0	0.5	Acenaphthene	610	33	-	40800000	ug/kg
CH47-008	2084143.221	750836.515	0	0.5	Americium-241	0.18	-	0.022700001	76	pCi/g
CH47-008	2084143.221	750836.515	0	0.5	Anthracene	720	26	-	204000000	ug/kg
CH47-008	2084143.221	750836.515	0	0.5	Antimony	0.62	-	0.47	409	mg/kg
CH47-008	2084143.221	750836.515	0	0.5	Benzo(a)anthracene	1500	27	-	34900	ug/kg
CH47-008	2084143.221	750836.515	0	0.5	Benzo(a)pyrene	1400	43	-	3490	ug/kg
CH47-008	2084143.221	750836.515	0	0.5	Benzo(b)fluoranthene	1000	31	-	34900	ug/kg
CH47-008	2084143.221	750836.515	0	0.5	Benzo(k)fluoranthene	1100	34	-	349000	ug/kg
CH47-008	2084143.221	750836.515	0	0.5	Beryllium	1.1	-	0.966000021	921	mg/kg
CH47-008	2084143.221	750836.515	0	0.5	Chromium	17	-	16.98999977	268	mg/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CH47-008	2084143.221	750836.515	0	0.5	Chrysene	1600	30	-	3490000	ug/kg
CH47-008	2084143.221	750836.515	0	0.5	Copper	24	-	18.05999947	40900	mg/kg
CH47-008	2084143.221	750836.515	0	0.5	Dibenz(a,h)anthracene	320	27	-	3490	ug/kg
CH47-008	2084143.221	750836.515	0	0.5	Dibenzofuran	220	39	-	2950000	ug/kg
CH47-008	2084143.221	750836.515	0	0.5	Fluoranthene	4200	24	-	27200000	ug/kg
CH47-008	2084143.221	750836.515	0	0.5	Fluorene	460	37	-	40800000	ug/kg
CH47-008	2084143.221	750836.515	0	0.5	Indeno(1,2,3-cd)pyrene	950	24	-	34900	ug/kg
CH47-008	2084143.221	750836.515	0	0.5	Naphthalene	210	34	-	3090000	ug/kg
CH47-008	2084143.221	750836.515	0	0.5	Pyrene	3800	140	-	22100000	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Acenaphthene	270	33	-	40800000	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Acetone	18	5.1	-	102000000	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Anthracene	340	26	-	204000000	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Benzo(a)anthracene	810	27	-	34900	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Benzo(a)pyrene	770	43	-	3490	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Benzo(b)fluoranthene	570	31	-	34900	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Benzo(k)fluoranthene	670	34	-	349000	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Chrysene	870	30	-	3490000	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Dibenz(a,h)anthracene	170	27	-	3490	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Dibenzofuran	91	39	-	2950000	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Fluoranthene	2300	24	-	27200000	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Fluorene	210	37	-	40800000	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Indeno(1,2,3-cd)pyrene	520	24	-	34900	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Methylene chloride	4.2	0.89	-	2530000	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Naphthalene	2	0.96	-	3090000	ug/kg
CH47-008	2084143.221	750836.515	0.5	2.5	Plutonium-239/240	0.0605	-	0.02	50	pCi/g
CH47-008	2084143.221	750836.515	0.5	2.5	Pyrene	1900	140	-	22100000	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	2-Methylnaphthalene	75	37	-	20400000	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	Acenaphthene	500	35	-	40800000	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	Anthracene	570	27	-	204000000	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	Benzo(a)anthracene	1100	28	-	34900	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	Benzo(a)pyrene	1100	46	-	3490	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	Benzo(b)fluoranthene	790	33	-	34900	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	Benzo(k)fluoranthene	970	37	-	349000	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CH47-009	2084158.756	750778.452	0.5	2.5	Chrysene	1200	32	-	3490000	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	Dibenzofuran	190	41	-	2950000	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	Fluoranthene	3200	26	-	27200000	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	Fluorene	370	39	-	40800000	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	Indeno(1,2,3-cd)pyrene	760	26	-	34900	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	Pyrene	2700	150	-	22100000	ug/kg
CH47-009	2084158.756	750778.452	0.5	2.5	Uranium-235	0.1933	-	0.12	8	pCi/g
CH47-010	2084160.691	750791.047	8	8.5	2-Methylnaphthalene	630	39	-	20400000	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	Acenaphthene	3100	38	-	40800000	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	Americium-241	0.8991	-	0.02	76	pCi/g
CH47-010	2084160.691	750791.047	8	8.5	Anthracene	3000	29	-	204000000	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	Benzo(a)anthracene	4700	31	-	34900	ug/kg
CH47-010	**2084160.691**	**750791.047**	**8**	**8.5**	**Benzo(a)pyrene**	**4500**	**50**	**-**	**3490**	**ug/kg**
CH47-010	2084160.691	750791.047	8	8.5	Benzo(b)fluoranthene	3800	36	-	34900	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	Benzo(k)fluoranthene	3900	39	-	349000	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	bis(2-Ethylhexyl)phthalate	260	89	-	1970000	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	Chrysene	4900	34	-	3490000	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	Copper	67	-	38.21	40900	mg/kg
CH47-010	2084160.691	750791.047	8	8.5	Dibenz(a,h)anthracene	1200	31	-	3490	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	Dibenzofuran	1300	45	-	2950000	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	Fluoranthene	12000	110	-	27200000	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	Fluorene	2300	42	-	40800000	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	Indeno(1,2,3-cd)pyrene	2400	28	-	34900	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	Lead	64	-	24.97	1000	mg/kg
CH47-010	2084160.691	750791.047	8	8.5	Naphthalene	2100	39	-	3090000	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	Plutonium-239/240	5.12487	-	0.02	50	pCi/g
CH47-010	2084160.691	750791.047	8	8.5	Pyrene	13000	660	-	22100000	ug/kg
CH47-010	2084160.691	750791.047	8	8.5	Uranium-235	0.1575	-	0.12	8	pCi/g
CH47-010	2084160.691	750791.047	8	8.5	Uranium-238	1.896	-	1.49	351	pCi/g
CH47-010	2084160.691	750791.047	8	8.5	Zinc	200	-	139.1	307000	mg/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Acenaphthene	110	35	-	40800000	ug/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Americium-241	0.8129	-	0.02	76	pCi/g
CH47-010	2084160.691	750791.047	8.5	10.5	Anthracene	120	27	-	204000000	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CH47-010	2084160.691	750791.047	8.5	10.5	Benzo(a)anthracene	220	28	-	34900	ug/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Benzo(a)pyrene	280	45	-	3490	ug/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Benzo(b)fluoranthene	190	33	-	34900	ug/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Benzo(k)fluoranthene	210	36	-	349000	ug/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Chrysene	250	31	-	3490000	ug/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Dibenzofuran	46	41	-	2950000	ug/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Fluoranthene	650	26	-	27200000	ug/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Fluorene	84	38	-	40800000	ug/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Indeno(1,2,3-cd)pyrene	160	26	-	34900	ug/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Lead	33	-	24.97	1000	mg/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Plutonium-239/240	4.63353	-	0.02	50	pCi/g
CH47-010	2084160.691	750791.047	8.5	10.5	Pyrene	600	150	-	22100000	ug/kg
CH47-010	2084160.691	750791.047	8.5	10.5	Uranium-235	0.1518	-	0.12	8	pCi/g
IHSS 700-139.1(S)										
CF47-008	2083923.437	750808.513	0	0.5	2-Methylnaphthalene	170	35	-	20400000	ug/kg
CF47-008	2083923.437	750808.513	0	0.5	Acenaphthene	1200	34	-	40800000	ug/kg
CF47-008	2083923.437	750808.513	0	0.5	Anthracene	41	26	-	204000000	ug/kg
CF47-008	2083923.437	750808.513	0	0.5	Benzo(a)anthracene	3100	27	-	34900	ug/kg
CF47-008	2083923.437	750808.513	0	0.5	Benzo(a)pyrene	3200	44	-	3490	ug/kg
CF47-008	2083923.437	750808.513	0	0.5	Benzo(b)fluoranthene	2200	31	-	34900	ug/kg
CF47-008	2083923.437	750808.513	0	0.5	Benzo(k)fluoranthene	3200	35	-	349000	ug/kg
CF47-008	2083923.437	750808.513	0	0.5	bis(2-Ethylhexyl)phthalate	130	79	-	1970000	ug/kg
CF47-008	2083923.437	750808.513	0	0.5	Chromium	54	-	16.9899998	268	mg/kg
CF47-008	2083923.437	750808.513	0	0.5	Chrysene	3500	30	-	3490000	ug/kg
CF47-008	2083923.437	750808.513	0	0.5	Copper	19	-	18.0599995	40900	mg/kg
CF47-008	2083923.437	750808.513	0	0.5	Dibenz(a,h)anthracene	930	27	-	3490	ug/kg
CF47-008	2083923.437	750808.513	0	0.5	Dibenzofuran	400	39	-	2950000	ug/kg
CF47-008	2083923.437	750808.513	0	0.5	Fluoranthene	9000	99	-	27200000	ug/kg
CF47-008	2083923.437	750808.513	0	0.5	Fluorene	910	37	-	40800000	ug/kg
CF47-008	2083923.437	750808.513	0	0.5	Indeno(1,2,3-cd)pyrene	2300	25	-	34900	ug/kg
CF47-008	2083923.437	750808.513	0	0.5	Nickel	190	-	14.9099998	20400	mg/kg
CF47-008	2083923.437	750808.513	0	0.5	Pyrene	7900	580	-	22100000	ug/kg
CF47-008	2083923.437	750808.513	0	0.5	Uranium-235	0.1412	-	0.0939	8	pCi/g

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CF47-008	2083923.437	750808.513	0	0.5	Zinc	85	-	73.7600021	307000	mg/kg
CF47-008	2083923.437	750808.513	0.5	2.5	1,2-Dichloropropane	8.14	5.45	-	345000	ug/kg
CF47-008	2083923.437	750808.513	0.5	2.5	2-Methylnaphthalene	610	35	-	20400000	ug/kg
CF47-008	2083923.437	750808.513	0.5	2.5	Acenaphthene	4100	34	-	40800000	ug/kg
CF47-008	2083923.437	750808.513	0.5	2.5	Anthracene	120	26	-	204000000	ug/kg
CF47-008	2083923.437	750808.513	0.5	2.5	Benzo(a)anthracene	7900	110	-	34900	ug/kg
CF47-008	**2083923.437**	**750808.513**	**0.5**	**2.5**	**Benzo(a)pyrene**	**7700**	**180**	**-**	**3490**	**ug/kg**
CF47-008	2083923.437	750808.513	0.5	2.5	Benzo(b)fluoranthene	6400	32	-	34900	ug/kg
CF47-008	2083923.437	750808.513	0.5	2.5	Benzo(k)fluoranthene	6600	140	-	349000	ug/kg
CF47-008	2083923.437	750808.513	0.5	2.5	Chrysene	8500	120	-	3490000	ug/kg
CF47-008	2083923.437	750808.513	0.5	2.5	Dibenz(a,h)anthracene	2300	27	-	3490	ug/kg
CF47-008	2083923.437	750808.513	0.5	2.5	Dibenzofuran	1400	40	-	2950000	ug/kg
CF47-008	2083923.437	750808.513	0.5	2.5	Fluoranthene	23000	100	-	27200000	ug/kg
CF47-008	2083923.437	750808.513	0.5	2.5	Fluorene	3200	38	-	40800000	ug/kg
CF47-008	2083923.437	750808.513	0.5	2.5	Indeno(1,2,3-cd)pyrene	5600	25	-	34900	ug/kg
CF47-008	2083923.437	750808.513	0.5	2.5	Pyrene	20000	590	-	22100000	ug/kg
CF47-009	2083922.163	750784.653	0	0.5	Acenaphthene	320	32	-	40800000	ug/kg
CF47-009	2083922.163	750784.653	0	0.5	Anthracene	360	24	-	204000000	ug/kg
CF47-009	2083922.163	750784.653	0	0.5	Antimony	0.91	-	0.47	409	mg/kg
CF47-009	2083922.163	750784.653	0	0.5	Benzo(a)anthracene	910	25	-	34900	ug/kg
CF47-009	2083922.163	750784.653	0	0.5	Benzo(a)pyrene	1000	41	-	3490	ug/kg
CF47-009	2083922.163	750784.653	0	0.5	Benzo(b)fluoranthene	760	30	-	34900	ug/kg
CF47-009	2083922.163	750784.653	0	0.5	Benzo(k)fluoranthene	930	33	-	349000	ug/kg
CF47-009	2083922.163	750784.653	0	0.5	Chromium	22	-	16.9899998	268	mg/kg
CF47-009	2083922.163	750784.653	0	0.5	Chrysene	1100	28	-	3490000	ug/kg
CF47-009	2083922.163	750784.653	0	0.5	Dibenz(a,h)anthracene	310	25	-	3490	ug/kg
CF47-009	2083922.163	750784.653	0	0.5	Dibenzofuran	98	37	-	2950000	ug/kg
CF47-009	2083922.163	750784.653	0	0.5	Fluoranthene	2800	23	-	27200000	ug/kg
CF47-009	2083922.163	750784.653	0	0.5	Fluorene	220	35	-	40800000	ug/kg
CF47-009	2083922.163	750784.653	0	0.5	Indeno(1,2,3-cd)pyrene	760	23	-	34900	ug/kg
CF47-009	2083922.163	750784.653	0	0.5	Lead	82	-	54.6199989	1000	mg/kg
CF47-009	2083922.163	750784.653	0	0.5	Pyrene	2200	140	-	22100000	ug/kg
CF47-009	2083922.163	750784.653	0.5	2.5	Chrysene	46	30	-	3490000	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CF47-009	2083922.163	750784.653	0.5	2.5	Fluoranthene	94	24	-	27200000	ug/kg
CF47-009	2083922.163	750784.653	0.5	2.5	Manganese	940	-	901.62	3480	mg/kg
CF47-010	2083927.585	750798.405	0	0.5	2-Methylnaphthalene	280	34	-	20400000	ug/kg
CF47-010	2083927.585	750798.405	0	0.5	Acenaphthene	1700	33	-	40800000	ug/kg
CF47-010	2083927.585	750798.405	0	0.5	Anthracene	46	26	-	204000000	ug/kg
CF47-010	2083927.585	750798.405	0	0.5	Antimony	0.52	-	0.47	409	mg/kg
CF47-010	2083927.585	750798.405	0	0.5	Benzo(a)anthracene	3900	27	-	34900	ug/kg
CF47-010	**2083927.585**	**750798.405**	**0**	**0.5**	**Benzo(a)pyrene**	**4100**	**43**	**-**	**3490**	**ug/kg**
CF47-010	2083927.585	750798.405	0	0.5	Benzo(b)fluoranthene	3100	31	-	34900	ug/kg
CF47-010	2083927.585	750798.405	0	0.5	Benzo(k)fluoranthene	3700	34	-	349000	ug/kg
CF47-010	2083927.585	750798.405	0	0.5	bis(2-Ethylhexyl)phthalate	220	78	-	1970000	ug/kg
CF47-010	2083927.585	750798.405	0	0.5	Cadmium	2.3	-	1.61199999	962	mg/kg
CF47-010	2083927.585	750798.405	0	0.5	Chromium	22	-	16.9899998	268	mg/kg
CF47-010	2083927.585	750798.405	0	0.5	Chrysene	4600	30	-	3490000	ug/kg
CF47-010	2083927.585	750798.405	0	0.5	Copper	25	-	18.0599995	40900	mg/kg
CF47-010	2083927.585	750798.405	0	0.5	Dibenz(a,h)anthracene	1200	27	-	3490	ug/kg
CF47-010	2083927.585	750798.405	0	0.5	Dibenzofuran	590	39	-	2950000	ug/kg
CF47-010	2083927.585	750798.405	0	0.5	Di-n-butylphthalate	560	22	-	73700000	ug/kg
CF47-010	2083927.585	750798.405	0	0.5	Fluoranthene	11000	98	-	27200000	ug/kg
CF47-010	2083927.585	750798.405	0	0.5	Fluorene	1200	37	-	40800000	ug/kg
CF47-010	2083927.585	750798.405	0	0.5	Indeno(1,2,3-cd)pyrene	2900	24	-	34900	ug/kg
CF47-010	2083927.585	750798.405	0	0.5	Nickel	23	-	14.9099998	20400	mg/kg
CF47-010	2083927.585	750798.405	0	0.5	Pyrene	10000	580	-	22100000	ug/kg
CF47-010	2083927.585	750798.405	0	0.5	Uranium-234	2.29	-	2.25300002	300	pCi/g
CF47-010	2083927.585	750798.405	0	0.5	Uranium-238	2.29	-	2	351	pCi/g
CF47-010	2083927.585	750798.405	0	0.5	Zinc	300	-	73.7600021	307000	mg/kg
CF47-010	2083927.585	750798.405	0.5	2.5	Uranium-235	0.136	-	0.12	8	pCi/g
CG47-030	2083953.234	750808.481	0	0.5	2-Methylnaphthalene	55	33	-	20400000	ug/kg
CG47-030	2083953.234	750808.481	0	0.5	Acenaphthene	470	32	-	40800000	ug/kg
CG47-030	2083953.234	750808.481	0	0.5	Aluminum	18000	-	16902	228000	mg/kg
CG47-030	2083953.234	750808.481	0	0.5	Anthracene	540	24	-	204000000	ug/kg
CG47-030	2083953.234	750808.481	0	0.5	Antimony	0.5	-	0.47	409	mg/kg
CG47-030	2083953.234	750808.481	0	0.5	Benzo(a)anthracene	1300	25	-	34900	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-030	2083953.234	750808.481	0	0.5	Benzo(a)pyrene	1500	41	-	3490	ug/kg
CG47-030	2083953.234	750808.481	0	0.5	Benzo(b)fluoranthene	1100	29	-	34900	ug/kg
CG47-030	2083953.234	750808.481	0	0.5	Benzo(k)fluoranthene	1400	33	-	349000	ug/kg
CG47-030	2083953.234	750808.481	0	0.5	Beryllium	0.99	-	0.96600002	921	mg/kg
CG47-030	2083953.234	750808.481	0	0.5	bis(2-Ethylhexyl)phthalate	120	74	-	1970000	ug/kg
CG47-030	2083953.234	750808.481	0	0.5	Chrysene	1600	28	-	3490000	ug/kg
CG47-030	2083953.234	750808.481	0	0.5	Dibenz(a,h)anthracene	370	25	-	3490	ug/kg
CG47-030	2083953.234	750808.481	0	0.5	Dibenzofuran	140	37	-	2950000	ug/kg
CG47-030	2083953.234	750808.481	0	0.5	Fluoranthene	3900	23	-	27200000	ug/kg
CG47-030	2083953.234	750808.481	0	0.5	Fluorene	320	35	-	40800000	ug/kg
CG47-030	2083953.234	750808.481	0	0.5	Indeno(1,2,3-cd)pyrene	1000	23	-	34900	ug/kg
CG47-030	2083953.234	750808.481	0	0.5	Lithium	13	-	11.5500002	20400	mg/kg
CG47-030	2083953.234	750808.481	0	0.5	Nickel	19	-	14.9099998	20400	mg/kg
CG47-030	2083953.234	750808.481	0	0.5	Pyrene	3300	140	-	22100000	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Acenaphthene	210	33	-	40800000	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Anthracene	220	26	-	204000000	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Benzo(a)anthracene	580	27	-	34900	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Benzo(a)pyrene	650	43	-	3490	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Benzo(b)fluoranthene	470	31	-	34900	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Benzo(k)fluoranthene	590	35	-	349000	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Chrysene	680	30	-	3490000	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Dibenz(a,h)anthracene	170	27	-	3490	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Fluoranthene	1700	24	-	27200000	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Fluorene	140	37	-	40800000	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Indeno(1,2,3-cd)pyrene	440	24	-	34900	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Naphthalene	1.1	0.96	-	3090000	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Pyrene	1400	140	-	22100000	ug/kg
CG47-030	2083953.234	750808.481	0.5	2.5	Uranium-235	0.291	-	0.12	8	pCi/g
CG47-031	2083958.737	750792.982	0	0.5	Acenaphthene	91	35	-	40800000	ug/kg
CG47-031	2083958.737	750792.982	0	0.5	Anthracene	96	27	-	204000000	ug/kg
CG47-031	2083958.737	750792.982	0	0.5	Benzo(a)anthracene	280	28	-	34900	ug/kg
CG47-031	2083958.737	750792.982	0	0.5	Benzo(a)pyrene	300	46	-	3490	ug/kg
CG47-031	2083958.737	750792.982	0	0.5	Benzo(b)fluoranthene	210	33	-	34900	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-031	2083958.737	750792.982	0	0.5	Benzo(k)fluoranthene	290	36	-	349000	ug/kg
CG47-031	2083958.737	750792.982	0	0.5	Chrysene	350	32	-	3490000	ug/kg
CG47-031	2083958.737	750792.982	0	0.5	Copper	19	-	18.0599995	40900	mg/kg
CG47-031	2083958.737	750792.982	0	0.5	Dibenz(a,h)anthracene	96	28	-	3490	ug/kg
CG47-031	2083958.737	750792.982	0	0.5	Fluoranthene	770	26	-	27200000	ug/kg
CG47-031	2083958.737	750792.982	0	0.5	Fluorene	62	39	-	40800000	ug/kg
CG47-031	2083958.737	750792.982	0	0.5	Indeno(1,2,3-cd)pyrene	190	26	-	34900	ug/kg
CG47-031	2083958.737	750792.982	0	0.5	Pyrene	750	150	-	22100000	ug/kg
CG47-031	2083958.737	750792.982	0	0.5	Uranium-234	5.247	-	2.25300002	300	pCi/g
CG47-031	2083958.737	750792.982	0	0.5	Uranium-235	0.223	-	0.0939	8	pCi/g
CG47-031	2083958.737	750792.982	0	0.5	Uranium-238	5.247	-	2	351	pCi/g
CG47-031	2083958.737	750792.982	0.5	2.5	Acenaphthene	110	35	-	40800000	ug/kg
CG47-031	2083958.737	750792.982	0.5	2.5	Aluminum	36000	-	35373.17	228000	mg/kg
CG47-031	2083958.737	750792.982	0.5	2.5	Anthracene	150	27	-	204000000	ug/kg
CG47-031	2083958.737	750792.982	0.5	2.5	Benzo(a)anthracene	430	28	-	34900	ug/kg
CG47-031	2083958.737	750792.982	0.5	2.5	Benzo(a)pyrene	500	46	-	3490	ug/kg
CG47-031	2083958.737	750792.982	0.5	2.5	Benzo(b)fluoranthene	310	33	-	34900	ug/kg
CG47-031	2083958.737	750792.982	0.5	2.5	Benzo(k)fluoranthene	510	36	-	349000	ug/kg
CG47-031	2083958.737	750792.982	0.5	2.5	Chrysene	530	32	-	3490000	ug/kg
CG47-031	2083958.737	750792.982	0.5	2.5	Fluoranthene	1100	26	-	27200000	ug/kg
CG47-031	2083958.737	750792.982	0.5	2.5	Indeno(1,2,3-cd)pyrene	370	26	-	34900	ug/kg
CG47-031	2083958.737	750792.982	0.5	2.5	Mercury	5	-	1.52	25200	mg/kg
CG47-031	2083958.737	750792.982	0.5	2.5	Pyrene	970	150	-	22100000	ug/kg
CG47-031	2083958.737	750792.982	0.5	2.5	Uranium-235	0.1763	-	0.12	8	pCi/g
CG47-032	2083938.646	750792.525	0	0.5	Acenaphthene	240	33	-	40800000	ug/kg
CG47-032	2083938.646	750792.525	0	0.5	Anthracene	280	26	-	204000000	ug/kg
CG47-032	2083938.646	750792.525	0	0.5	Benzo(a)anthracene	690	27	-	34900	ug/kg
CG47-032	2083938.646	750792.525	0	0.5	Benzo(a)pyrene	740	43	-	3490	ug/kg
CG47-032	2083938.646	750792.525	0	0.5	Benzo(b)fluoranthene	600	31	-	34900	ug/kg
CG47-032	2083938.646	750792.525	0	0.5	Benzo(k)fluoranthene	640	34	-	349000	ug/kg
CG47-032	2083938.646	750792.525	0	0.5	Chrysene	830	30	-	3490000	ug/kg
CG47-032	2083938.646	750792.525	0	0.5	Dibenz(a,h)anthracene	250	27	-	3490	ug/kg
CG47-032	2083938.646	750792.525	0	0.5	Dibenzofuran	75	39	-	2950000	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-032	2083938.646	750792.525	0	0.5	Fluoranthene	2100	24	-	27200000	ug/kg
CG47-032	2083938.646	750792.525	0	0.5	Fluorene	160	37	-	40800000	ug/kg
CG47-032	2083938.646	750792.525	0	0.5	Indeno(1,2,3-cd)pyrene	550	24	-	34900	ug/kg
CG47-032	2083938.646	750792.525	0	0.5	Pyrene	1800	140	-	22100000	ug/kg
CG47-032	2083938.646	750792.525	0	0.5	Zinc	77	-	73.7600021	307000	mg/kg
CG47-032	2083938.646	750792.525	0.5	2.5	Acenaphthene	300	33	-	40800000	ug/kg
CG47-032	2083938.646	750792.525	0.5	2.5	Anthracene	500	25	-	204000000	ug/kg
CG47-032	2083938.646	750792.525	0.5	2.5	Benzo(a)anthracene	850	26	-	34900	ug/kg
CG47-032	2083938.646	750792.525	0.5	2.5	Benzo(a)pyrene	820	43	-	3490	ug/kg
CG47-032	2083938.646	750792.525	0.5	2.5	Benzo(b)fluoranthene	620	31	-	34900	ug/kg
CG47-032	2083938.646	750792.525	0.5	2.5	Benzo(k)fluoranthene	710	34	-	349000	ug/kg
CG47-032	2083938.646	750792.525	0.5	2.5	Chrysene	1000	30	-	3490000	ug/kg
CG47-032	2083938.646	750792.525	0.5	2.5	Dibenz(a,h)anthracene	220	26	-	3490	ug/kg
CG47-032	2083938.646	750792.525	0.5	2.5	Fluoranthene	2400	24	-	27200000	ug/kg
CG47-032	2083938.646	750792.525	0.5	2.5	Fluorene	270	36	-	40800000	ug/kg
CG47-032	2083938.646	750792.525	0.5	2.5	Indeno(1,2,3-cd)pyrene	470	24	-	34900	ug/kg
CG47-032	2083938.646	750792.525	0.5	2.5	Pyrene	2100	140	-	22100000	ug/kg
CG47-033	2083954.913	750802.868	0	0.5	Acenaphthene	370	37	-	40800000	ug/kg
CG47-033	2083954.913	750802.868	0	0.5	Aluminum	22000	-	16902	228000	mg/kg
CG47-033	2083954.913	750802.868	0	0.5	Anthracene	370	29	-	204000000	ug/kg
CG47-033	2083954.913	750802.868	0	0.5	Antimony	1.2	-	0.47	409	mg/kg
CG47-033	2083954.913	750802.868	0	0.5	Barium	180	-	141.259995	26400	mg/kg
CG47-033	2083954.913	750802.868	0	0.5	Benzo(a)anthracene	1200	30	-	34900	ug/kg
CG47-033	2083954.913	750802.868	0	0.5	Benzo(a)pyrene	1200	49	-	3490	ug/kg
CG47-033	2083954.913	750802.868	0	0.5	Benzo(b)fluoranthene	1100	35	-	34900	ug/kg
CG47-033	2083954.913	750802.868	0	0.5	Benzo(k)fluoranthene	970	39	-	349000	ug/kg
CG47-033	2083954.913	750802.868	0	0.5	Beryllium	1.6	-	0.96600002	921	mg/kg
CG47-033	2083954.913	750802.868	0	0.5	Cadmium	3	-	1.61199999	962	mg/kg
CG47-033	2083954.913	750802.868	0	0.5	Chromium	32	-	16.9899998	268	mg/kg
CG47-033	2083954.913	750802.868	0	0.5	Chrysene	1400	34	-	3490000	ug/kg
CG47-033	2083954.913	750802.868	0	0.5	Copper	61	-	18.0599995	40900	mg/kg
CG47-033	2083954.913	750802.868	0	0.5	Dibenz(a,h)anthracene	420	30	-	3490	ug/kg
CG47-033	2083954.913	750802.868	0	0.5	Dibenzofuran	100	44	-	2950000	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-033	2083954.913	750802.868	0	0.5	Fluoranthene	3100	27	-	27200000	ug/kg
CG47-033	2083954.913	750802.868	0	0.5	Fluorene	250	41	-	40800000	ug/kg
CG47-033	2083954.913	750802.868	0	0.5	Indeno(1,2,3-cd)pyrene	830	27	-	34900	ug/kg
CG47-033	2083954.913	750802.868	0	0.5	Iron	27000	-	18037	307000	mg/kg
CG47-033	2083954.913	750802.868	0	0.5	Lithium	17	-	11.5500002	20400	mg/kg
CG47-033	2083954.913	750802.868	0	0.5	Manganese	370	-	365.079987	3480	mg/kg
CG47-033	2083954.913	750802.868	0	0.5	Mercury	0.21	-	0.134	25200	mg/kg
CG47-033	2083954.913	750802.868	0	0.5	Nickel	40	-	14.9099998	20400	mg/kg
CG47-033	2083954.913	750802.868	0	0.5	Pyrene	2800	160	-	22100000	ug/kg
CG47-033	2083954.913	750802.868	0	0.5	Uranium-234	4.597	-	2.25300002	300	pCi/g
CG47-033	2083954.913	750802.868	0	0.5	Uranium-235	0.204	-	0.0939	8	pCi/g
CG47-033	2083954.913	750802.868	0	0.5	Uranium-238	4.597	-	2	351	pCi/g
CG47-033	2083954.913	750802.868	0	0.5	Zinc	350	-	73.7600021	307000	mg/kg
CG47-033	2083954.913	750802.868	0.5	2.5	2-Methylnaphthalene	73	38	-	20400000	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Acenaphthene	360	37	-	40800000	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Anthracene	490	29	-	204000000	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Benzo(a)anthracene	900	30	-	34900	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Benzo(a)pyrene	1100	48	-	3490	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Benzo(b)fluoranthene	850	35	-	34900	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Benzo(k)fluoranthene	830	38	-	349000	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Chrysene	1000	33	-	3490000	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Dibenz(a,h)anthracene	360	30	-	3490	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Dibenzofuran	150	43	-	2950000	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Fluoranthene	2800	27	-	27200000	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Fluorene	310	41	-	40800000	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Indeno(1,2,3-cd)pyrene	740	27	-	34900	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Pyrene	2400	160	-	22100000	ug/kg
CG47-033	2083954.913	750802.868	0.5	2.5	Uranium-235	0.1808	-	0.12	8	pCi/g
CG47-034	2083949.418	750797.661	0	0.5	1,1,1-Trichloroethane	11	1.1	-	79700000	ug/kg
CG47-034	2083949.418	750797.661	0	0.5	2-Methylnaphthalene	130	36	-	20400000	ug/kg
CG47-034	2083949.418	750797.661	0	0.5	Acenaphthene	860	35	-	40800000	ug/kg
CG47-034	2083949.418	750797.661	0	0.5	Anthracene	950	27	-	204000000	ug/kg
CG47-034	2083949.418	750797.661	0	0.5	Antimony	0.97	-	0.47	409	mg/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-034	2083949.418	750797.661	0	0.5	Barium	150	-	141.259995	26400	mg/kg
CG47-034	2083949.418	750797.661	0	0.5	Benzo(a)anthracene	2300	28	-	34900	ug/kg
CG47-034	2083949.418	750797.661	0	0.5	Benzo(a)pyrene	2400	45	-	3490	ug/kg
CG47-034	2083949.418	750797.661	0	0.5	Benzo(b)fluoranthene	1700	32	-	34900	ug/kg
CG47-034	2083949.418	750797.661	0	0.5	Benzo(k)fluoranthene	2200	36	-	349000	ug/kg
CG47-034	2083949.418	750797.661	0	0.5	bis(2-Ethylhexyl)phthalate	500	81	-	1970000	ug/kg
CG47-034	2083949.418	750797.661	0	0.5	Chromium	26	-	16.9899998	268	mg/kg
CG47-034	2083949.418	750797.661	0	0.5	Chrysene	2600	31	-	3490000	ug/kg
CG47-034	2083949.418	750797.661	0	0.5	Copper	29	-	18.0599995	40900	mg/kg
CG47-034	2083949.418	750797.661	0	0.5	Dibenz(a,h)anthracene	660	28	-	3490	ug/kg
CG47-034	2083949.418	750797.661	0	0.5	Dibenzofuran	320	40	-	2950000	ug/kg
CG47-034	2083949.418	750797.661	0	0.5	Fluoranthene	5800	25	-	27200000	ug/kg
CG47-034	2083949.418	750797.661	0	0.5	Fluorene	630	38	-	40800000	ug/kg
CG47-034	2083949.418	750797.661	0	0.5	Indeno(1,2,3-cd)pyrene	1600	25	-	34900	ug/kg
CG47-034	2083949.418	750797.661	0	0.5	Mercury	0.18	-	0.134	25200	mg/kg
CG47-034	2083949.418	750797.661	0	0.5	Methylene chloride	0.99	0.92	-	2530000	ug/kg
CG47-034	2083949.418	750797.661	0	0.5	Naphthalene	1.4	0.99	-	3090000	ug/kg
CG47-034	2083949.418	750797.661	0	0.5	Nickel	42	-	14.9099998	20400	mg/kg
CG47-034	2083949.418	750797.661	0	0.5	Pentachlorophenol	470	130	-	162000	ug/kg
CG47-034	2083949.418	750797.661	0	0.5	Plutonium-239/240	0.153	-	0.066	50	pCi/g
CG47-034	2083949.418	750797.661	0	0.5	Pyrene	6000	150	-	22100000	ug/kg
CG47-034	2083949.418	750797.661	0	0.5	Tetrachloroethene	1.2	1.1	-	615000	ug/kg
CG47-034	2083949.418	750797.661	0	0.5	Zinc	290	-	73.7600021	307000	mg/kg
CG47-034	2083949.418	750797.661	0.5	2.5	2-Methylnaphthalene	100	38	-	20400000	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Acenaphthene	610	37	-	40800000	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Anthracene	720	28	-	204000000	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Benzo(a)anthracene	1400	29	-	34900	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Benzo(a)pyrene	1500	48	-	3490	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Benzo(b)fluoranthene	1200	34	-	34900	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Benzo(k)fluoranthene	1200	38	-	349000	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	bis(2-Ethylhexyl)phthalate	700	86	-	1970000	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Chrysene	1600	33	-	3490000	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Dibenz(a,h)anthracene	410	29	-	3490	ug/kg

Sampling Location	Actual Easting	Actual Northing	Start Depth (ft)	End Depth (ft)	Analyte	Result	RL	BGM+2SD	WRW AL	Unit
CG47-034	2083949.418	750797.661	0.5	2.5	Dibenzofuran	230	43	-	2950000	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Fluoranthene	4100	27	-	27200000	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Fluorene	480	40	-	40800000	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Indeno(1,2,3-cd)pyrene	940	27	-	34900	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Methylene chloride	1	0.98	-	2530000	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Naphthalene	1.2	1.1	-	3090000	ug/kg
CG47-034	2083949.418	750797.661	0.5	2.5	Pyrene	4000	160	-	22100000	ug/kg

*Analytes in bold exceeded their respective WRW AL.

0HIS TARGET SHEET REPRESENTS AN OVER-SIZED MAP / PLATE FOR THIS DOCUMENT:
(Ref: 04-RF-01088; KLW-031-04)

Closeout Report for IHSS Group 700-6IHSS 700-137, Buildings 712/713 Cooling Tower Blo9wdown, and IHSS 700-139.1(S) Caustic/Acid Spills Hydroxide Tank Area

October, 2004

Figure 4:

IHSS Group 700-6 Accelerated Action Characterization Surface Soil Data Greater than MDLs/RLs or BGM+2SDs

File: W\Projects\Fy2004\700-6\700-6_closeout_av\700-6_finalcr_10-14-04.apr

October 20, 2004

CERCLA Administrative Record Document, IA-A-002397

U.S. DEPARTEMENT OF ENERGY
ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

GOLDEN, COLORADO

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0HIS TARGET SHEET REPRESENTS AN OVER-SIZED MAP / PLATE FOR THIS DOCUMENT:
(Ref: 04-RF-01088; KLW-031-04)

Closeout Report for IHSS Group 700-6IHSS 700-137, Buildings 712/713 Cooling Tower Blo9wdown, and IHSS 700-139.1(S) Caustic/Acid Spills Hydroxide Tank Area

October, 2004

Figure 5:

IHSS Group 700-6 Accelerated Action Characterization Subsurface Soil Data Greater than MDLs/RLs or BGM+2SDs

File: W\Projects\Fy2004\700-6\700-6_closeout_av\700-6_finalcr_10-14-04.apr

October 20, 2004

CERCLA Administrative Record Document, IA-A-002397

U.S. DEPARTEMENT OF ENERGY
ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE

GOLDEN, COLORADO

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Table 4
IHSS Group 700-6 Accelerated Action Characterization Radionuclide SORs

Sampling Location	Start Depth (ft)	End Depth (ft)	SOR
CF47-008	0	0.5	0.018
CF47-010	0	0.5	0.014
CF47-010	0.5	2.5	0.017
CG46-011	0	0.5	0.020
CG46-014	0	0.5	0.065
CG46-014	0.5	2.5	0.020
CG47-007	0	0.5	0.055
CG47-007	0.5	2.0	0.075
CG47-008	0	0.5	0.059
CG47-008	0.5	2.5	0.023
CG47-009	0	0.5	0.002
CG47-009	0.5	1.5	0.001
CG47-011	0	0.5	0.048
CG47-011	0.5	0.8	0.078
CG47-012	0	0.5	0.038
CG47-012	0.5	1.9	0.021
CG47-013	0	0.5	0.099
CG47-014	0	0.5	0.057
CG47-014	0.5	2.5	0.005
CG47-015	0	0.5	0.021
CG47-015	0.5	1.8	0.027
CG47-016	0	0.5	0.026
CG47-016	0.5	2.5	0.022
CG47-017	0	0.5	0.016
CG47-017	0.5	0.8	0.023
CG47-019	0	0.5	0.101
CG47-019	0.5	2.5	0.022
CG47-020	0.5	1.5	0.081
CG47-022	0	0.5	0.028
CG47-022	0.5	2.5	0.018
CG47-023	0.5	2.0	0.035
CG47-024	0	0.5	0.031
CG47-024	0.5	1.5	0.007
CG47-025	0	0.5	0.083
CG47-025	0.5	2.5	0.023
CG47-026	0	0.5	0.032
CG47-027	0	0.5	0.019
CG47-027	0.5	2.5	0.017
CG47-028	0	0.5	0.043
CG47-028	0.5	2.0	0.061
CG47-030	0.5	2.5	0.036
CG47-031	0	0.5	0.060
CG47-031	0.5	2.5	0.022

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Sampling Location	Start Depth (ft)	End Depth (ft)	SOR
CG47-033	0	0.5	0.054
CG47-033	0.5	2.5	0.023
CG47-034	0	0.5	0.001
CH47-007	0.5	2.5	0.023
CH47-008	0	0.5	0.002
CH47-008	0.5	2.5	0.001
CH47-009	0.5	2.5	0.024

Table 5
IHSS Group 700-6 Accelerated Action Characterization Nonradionuclide SORs

Sampling Location	Start Depth (ft)	End Depth (ft)	SOR
CF47-008	0	0.5	0.201
CG46-011	0	0.5	0.373
CG46-014	0	0.5	0.406
CG47-008	0	0.5	0.138
CG47-013	0	0.5	0.130
CG47-014	0	0.5	0.101
CG47-016	0	0.5	0.112
CG47-017	0	0.5	0.116
CG47-019	0	0.5	0.112
CG47-020	0	0.5	0.280
CG47-022	0	0.5	0.146
CG47-024	0	0.5	0.310
CG47-025	0	0.5	1.754
CG47-026	0	0.5	0.123
CG47-033	0	0.5	0.119

Table 6
IHSS Group 700-6 Accelerated Action Characterization Surface Soil Summary Statistics

Analyte	No. of Samples	Detection Frequency	Mean Concentration	Maximum Concentration	BGM+2SDs	WRW AL	Unit
1,1,1-Trichloroethane	18	5.56%	11.000	11.000		79700000	ug/kg
2-Methylnaphthalene	32	31.25%	132.800	280.000		20400000	ug/kg
Acenaphthene	32	84.38%	415.296	1700.000		40800000	ug/kg
Aluminum	32	50.00%	23687.500	44000.000	16902.00	228000	mg/kg
Americium-241	32	21.88%	0.483	1.008	0.02	76	pCi/g
Anthracene	32	87.50%	366.500	1800.000		204000000	ug/kg
Antimony	32	59.38%	1.678	5.900	0.47	409	mg/kg
Arsenic	32	25.00%	27.125	97.000	10.09	22.2	mg/kg
Barium	32	18.75%	183.333	250.000	141.26	26400	mg/kg
Benzo(a)anthracene	32	90.63%	1001.690	3900.000		34900	ug/kg
Benzo(a)pyrene	32	68.75%	1245.000	4100.000		3490	ug/kg
Benzo(b)fluoranthene	32	81.25%	867.308	3100.000		34900	ug/kg
Benzo(k)fluoranthene	32	81.25%	1007.769	3700.000		349000	ug/kg

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Analyte	No. of Samples	Detection Frequency	Mean Concentration	Maximum Concentration	BGM+2SDs	WRW AL	Unit
Benzoic acid	32	9.38%	470.000	510.000		1000000000	ug/kg
Benzyl alcohol	32	3.13%	240.000	240.000		307000000	ug/kg
Beryllium	32	43.75%	1.328	1.900	0.97	921	mg/kg
bis(2-Ethylhexyl)phthalate	32	40.63%	212.000	500.000		1970000	ug/kg
Butylbenzylphthalate	32	12.50%	510.000	1400.000		147000000	ug/kg
Cadmium	32	25.00%	3.725	8.400	1.61	962	mg/kg
Chromium	32	78.13%	43.280	210.000	16.99	268	mg/kg
Chrysene	32	90.63%	1143.207	4600.000		3490000	ug/kg
Cobalt	32	9.38%	20.667	34.000	10.91	1550	mg/kg
Copper	32	87.50%	153.536	1600.000	18.06	40900	mg/kg
Dibenz(a,h)anthracene	32	46.88%	381.867	1200.000		3490	ug/kg
Dibenzofuran	32	56.25%	202.778	590.000		2950000	ug/kg
Dimethylphthalate	32	6.25%	180.000	180.000		1000000000	ug/kg
Di-n-butylphthalate	32	18.75%	226.667	560.000		73700000	ug/kg
Fluoranthene	32	90.63%	2799.655	11000.000		27200000	ug/kg
Fluorene	32	81.25%	319.808	1200.000		40800000	ug/kg
Indeno(1,2,3-cd)pyrene	32	59.38%	862.789	2900.000		34900	ug/kg
Iron	32	46.88%	25000.000	61000.000	18037.00	307000	mg/kg
Lead	32	21.88%	224.000	970.000	54.62	1000	mg/kg
Lithium	32	46.88%	15.733	22.000	11.55	20400	mg/kg
Manganese	32	12.50%	467.500	570.000	365.08	3480	mg/kg
Mercury	32	34.38%	0.435	2.400	0.13	25200	mg/kg
Methylene chloride	18	5.56%	0.990	0.990		2530000	ug/kg
Naphthalene	32	57.89%	233.533	710.000		3090000	ug/kg
Nickel	32	62.50%	32.350	190.000	14.91	20400	mg/kg
Pentachlorophenol	32	6.25%	625.000	780.000		162000	ug/kg
Plutonium-239/240	32	18.75%	2.906	5.746	0.07	50	pCi/g
Pyrene	32	90.63%	2484.138	10000.000		22100000	ug/kg
Strontium	32	25.00%	84.750	150.000	48.94	613000	mg/kg
Tetrachloroethene	18	5.56%	1.200	1.200		615000	ug/kg
Tin	32	6.25%	6.250	9.500	2.90	613000	mg/kg
Uranium-234	32	46.88%	4.407	7.735	2.25	300	pCi/g
Uranium-235	32	46.88%	0.197	0.296	0.09	8	pCi/g
Uranium-238	32	56.25%	4.030	7.735	2.00	351	pCi/g
Vanadium	32	18.75%	56.167	74.000	45.59	7150	mg/kg
Zinc	32	59.38%	307.211	1200.000	73.76	307000	mg/kg

Table 7
IHSS Group 700-6 Accelerated Action Characterization
Subsurface Soil Summary Statistics

Analyte	No. of Samples	Detection Frequency	Mean Concentration	Maximum Concentration	BGM+2SD	WRW AL	Unit
1,2-Dichloropropane	40	2.50%	8.140	8.140		345000	ug/kg
2-Butanone	40	2.50%	5.100	5.100		192000000	ug/kg

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Analyte	No. of Samples	Detection Frequency	Mean Concentration	Maximum Concentration	BGM+2SD	WRW AL	Unit
2-Methylnaphthalene	41	26.83%	176.909	630.000		20400000	ug/kg
Acenaphthene	41	58.54%	556.750	4100.000		40800000	ug/kg
Acetone	40	5.00%	20.500	23.000		102000000	ug/kg
Aluminum	41	7.32%	38333.333	41000.000	35373.170	228000	mg/kg
Americium-241	41	7.32%	0.596	0.899	0.020	76	pCi/g
Anthracene	41	63.41%	418.500	3000.000		204000000	ug/kg
Arsenic	41	12.20%	16.400	19.000	13.140	22.2	mg/kg
Benzo(a)anthracene	41	60.98%	1094.440	7900.000		34900	ug/kg
Benzo(a)pyrene	41	51.22%	1237.143	7700.000		3490	ug/kg
Benzo(b)fluoranthene	41	65.85%	816.519	6400.000		34900	ug/kg
Benzo(k)fluoranthene	41	60.98%	940.840	6600.000		349000	ug/kg
bis(2-Ethylhexyl)phthalate	41	14.63%	230.500	700.000		1970000	ug/kg
Butylbenzylphthalate	41	4.88%	91.500	100.000		147000000	ug/kg
Cadmium	41	2.44%	2.400	2.400	1.700	962	mg/kg
Carbon disulfide	40	2.50%	1.900	1.900		15100000	ug/kg
Chromium	41	2.44%	300.000	300.000	68.270	268	mg/kg
Chrysene	41	63.41%	1158.308	8500.000		3490000	ug/kg
Cobalt	41	2.44%	37.000	37.000	29.040	1550	mg/kg
Copper	41	17.07%	96.000	160.000	38.210	40900	mg/kg
Dibenz(a,h)anthracene	41	29.27%	469.250	2300.000		3490	ug/kg
Dibenzofuran	41	29.27%	367.500	1400.000		2950000	ug/kg
Di-n-butylphthalate	41	9.76%	417.750	1400.000		73700000	ug/kg
Fluoranthene	41	68.29%	2774.464	23000.000		27200000	ug/kg
Fluorene	41	51.22%	483.476	3200.000		40800000	ug/kg
Indeno(1,2,3-cd)pyrene	41	43.90%	877.333	5600.000		34900	ug/kg
Lead	41	19.51%	109.000	560.000	24.970	1000	mg/kg
Manganese	41	2.44%	940.000	940.000	901.620	3480	mg/kg
Mercury	41	2.44%	5.000	5.000	1.520	25200	mg/kg
Methylene chloride	40	5.00%	2.600	4.200		2530000	ug/kg
Naphthalene	41	26.83%	474.818	2100.000		3090000	ug/kg
Nickel	41	2.44%	150.000	150.000	62.210	20400	mg/kg
Plutonium-239/240	41	7.32%	3.273	5.125	0.020	50	pCi/g
Pyrene	41	63.41%	2720.385	20000.000		22100000	ug/kg
Toluene	40	5.00%	8.035	9.200		31300000	ug/kg
Uranium, Total	18	5.56%	3.700	3.700	3.040	2750	mg/kg
Uranium-234	41	19.51%	3.887	5.148	2.640	300	pCi/g
Uranium-235	41	68.29%	0.202	0.432	0.120	8	pCi/g
Uranium-238	41	39.02%	2.953	5.148	1.490	351	pCi/g
Zinc	41	4.88%	305.000	410.492	139.100	307000	mg/kg

3.0 ACCELERATED ACTION

The accelerated action soil removal is discussed below. The discussion includes identification of potential sources of contamination, remediation goals, and soil removal.

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3.1 Evaluation of WRW AL Exceedances

Historical and accelerated action characterization data for contaminant concentrations in soil greater than WRW ALs at IHSS Group 700-6 are presented in Table 8.

Table 8
IHSS Group 700-6 Historical and Accelerated Action Characterization
WRW AL Exceedances in Soil

IHSS	Sampling Location	Sample Interval (ft bgs)	Analyte (unit)	Result	WRW AL
700-137	CG47-011	0.5-0.8	Chromium (mg/kg)	300	268
	CG47-024	0-0.5	Arsenic (mg/kg)	32	22.2
	CG47-025	0-0.5	Arsenic (mg/kg)	97	22.2
	CH47-010	8-8.5	Benzo(a)pyrene (µg/kg)	4500	3490
	SS801893	0-0.25	Arsenic (mg/kg)	56.2	22.2
	SS801993	0-0.25	Arsenic (mg/kg)	201	22.2
			Chromium (mg/kg)	309	268
700-139.1(S)	CF47-008	0.5-2.5	Benzo(a)pyrene (µg/kg)	7700	3490
	CF47-010	0-0.5	Benzo(a)pyrene (µg/kg)	4100	3490
	SS804093	0-0.25	Benzo(a)pyrene (µg/kg)	4300	3490

Contaminant concentrations in soil greater than WRW ALs at IHSS Group 700-6 were limited to three analytes (arsenic, benzo(a)pyrene, and chromium) and nine sampling locations (six in IHSS 700-137 and three in IHSS 700-139.1(S). The arsenic, chromium, and benzo(a)pyrene WRW AL exceedances occurred in soil collected from IHSS 700-137, and benzo(a)pyrene exceedances occurred in soil collected from IHSS 700-139.1(S). Arsenic concentrations in soil exceeded the WRW AL at four sampling locations, CG47-024, CG47-025, SS801893, and SS801993. Benzo(a)pyrene concentrations in soil exceeded the WRW AL at four sampling locations, CF47-008, CG47-011, CH47-010, and SS804093. Chromium exceeded the WRW AL at SS801993, and CG47-011.

Contaminant concentrations above WRW ALs were limited to surface soil (0 to 0.5 ft bgs) at all sampling locations except for CF47-008, CG47-011 and CH47-010. At sampling location CF47-008, the benzo(a)pyrene concentration in subsurface soil (0.5 to 2.5 ft bgs) was 7,700 micrograms per kilogram (µg/kg). At sampling location CG47-011, the chromium concentration in subsurface soil (0.5 to 0.8 ft bgs) was 300 mg/kg. At sampling location CH47-010, the benzo(a)pyrene concentration in subsurface soil (8 to 8.5 ft bgs) was 4,500 µg/kg. All other contaminant concentrations in soil collected from the IHSS Group 700-6 sampling locations were below WRW ALs.

Based on the hot spot methodology (DOE 2001), the surface soil exceedances of arsenic at sampling locations CG47-024 and SS801893, chromium at sampling location SS801993, and benzo(a)pyrene at sampling locations CF47-010 and SS804093 do not require remediation. The results of the Elevated Measurements Comparison (EMC) were less than 1 and analytical results were less than three times the WRW ALs. Based on the SSRS (DOE et al. 2003), subsurface soil

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exceedances of chromium at CG47-011 and benzo(a)pyrene at sampling locations CF47-008 and CH47-010 also do not require remediation. In addition, surface soil is not likely to be disturbed at these sampling locations because they are not located in an area prone to erosion or landslides.

Based on the hot spot methodology, surface soil at sampling locations CG47-025 and SS801993 required remediation. Arsenic concentrations in subsurface soil collected at these locations were more than three times the WRW AL.

3.2 Remedial Action Objectives and Accelerated Action Goals

ER RSOP RAOs (DOE 2002) and accelerated action goals were established for the remediation of soil at IHSS Group 700-6 sites. The RAOs stated in ER RSOP Notification #04-17 (DOE 2004a) are as follows:

- Provide a remedy consistent with the RFETS goal of protection of human health and the environment;
- Provide a remedy that minimizes the need for long-term maintenance and institutional or engineering controls; and,
- Minimize the spread of contaminants during implementation of accelerated actions.

In order to accomplish the RAOs, specific accelerated action goals had to be achieved. The goals for remediation at the IHSS Group 700-6 sites were:

- Remediate surface soil at sampling locations CG47-025 and SS801993, including excavate soil with arsenic concentrations greater than the RFCA WRW AL to a depth of 6 inches; and
- Collect soil samples from the center of the sidewalls and bottoms of the excavations and analyze the samples for metals to confirm remediation.

3.3 Accelerated Action Soil Removal Activities

At sampling locations CG47-025 and SS801993, accelerated action soil removal activities were conducted in accordance with ER RSOP Notification #04-17 (DOE 2004a). Removal activities were initiated and completed on August 2, 2004. Starting and ending dates of significant IHSS Group 700-6 accelerated action activities are listed in Table 9. At sampling location SS801993, soil was excavated to a depth of approximately 2 ft bgs and equal distances laterally to the north, west, and south. No soil was excavated from the area east of sampling location SS801993 because this location was situated immediately adjacent to Valve Pit 713A and no soil was present.

Table 9
IHSS Group 700-6 Accelerated Action Activities

Activity	Starting Date	Ending Date	Length of Activity
Characterization Sampling	April 15, 2004	June 3, 2004	5 days
Excavating/Confirmation Sampling	August 2, 2004	August 2, 2004	< 1 day
Backfilling Excavation	August 2, 2004	August 2, 2004	< 1 day

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At sampling location CG47-025, soil was excavated to a depth of approximately 1.5 ft bgs and equal distances laterally to the east, north, and west. No soil was excavated from the area south of sampling location CG47-025 because this location was situated immediately adjacent to an area that had been excavated when footers and other underground structures associated with Building 713 were removed.

Figure 6 shows the excavation boundaries resulting from soil removal activities. Photographs of the accelerated action activities conducted at IHSS 700-137 are provided in Appendix A.

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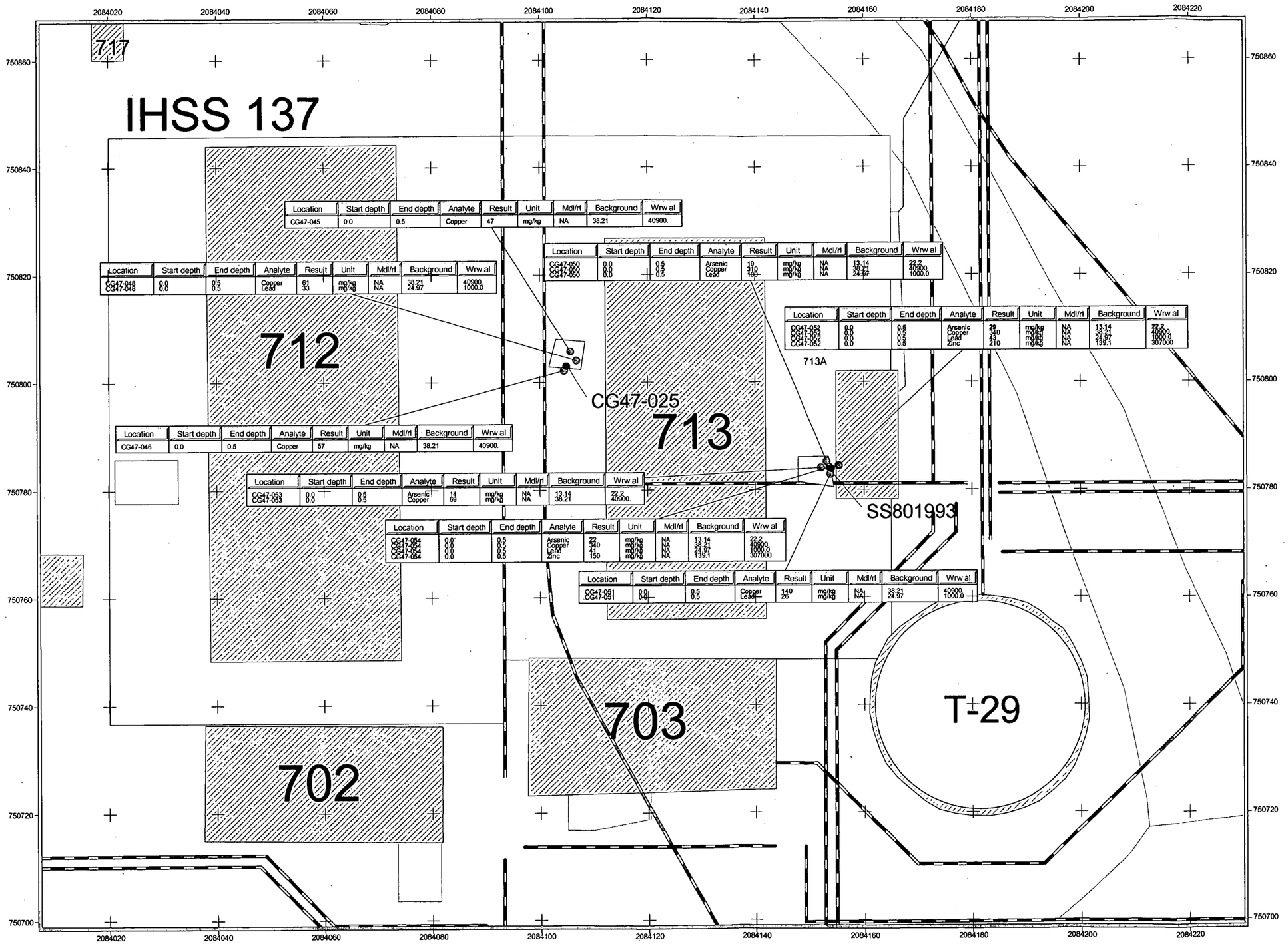
Figure 6
IHSS Group 700-6
Accelerated Action Remediation
Excavation Boundaries and Confirmation
Sample Data Greater than RLs or BGM+2SDs



Location	Start depth	End depth	Analyte	Result	Unit	Mdl/rl	Background	Wrw al
CG47-045	0.0	0.5	Copper	47	mg/kg	NA	38.21	40900.

Location	Start depth	End depth	Analyte	Result	Unit	Mdl/rl	Background	Wrw al
CG47-048	0.0	0.5	Copper	61	mg/kg	NA	38.21	40900.
CG47-048	0.0	0.5	Lead	93	mg/kg	NA	24.97	1000.0

Location	Start depth	End depth	Analyte	Result	Unit	Mdl/rl	Background	Wrw al
CG47-050	0.0	0.5	Arsenic	19	mg/kg	NA	13.14	22.2
CG47-050	0.0	0.5	Copper	310	mg/kg	NA	38.21	40900.
CG47-050	0.0	0.5	Lead	100	mg/kg	NA	24.97	1000.0

Location	Start depth	End depth	Analyte	Result	Unit	Mdl/rl	Background	Wrw al
CG47-052	0.0	0.5	Arsenic	29	mg/kg	NA	13.14	22.2
CG47-052	0.0	0.5	Copper	340	mg/kg	NA	38.21	40900.
CG47-052	0.0	0.5	Lead	43	mg/kg	NA	24.97	1000.0
CG47-052	0.0	0.5	Zinc	210	mg/kg	NA	139.1	307000

Location	Start depth	End depth	Analyte	Result	Unit	Mdl/rl	Background	Wrw al
CG47-046	0.0	0.5	Copper	57	mg/kg	NA	38.21	40900.

Location	Start depth	End depth	Analyte	Result	Unit	Mdl/rl	Background	Wrw al
CG47-053	0.0	0.5	Arsenic	14	mg/kg	NA	13.14	22.2
CG47-053	0.0	0.5	Copper	69	mg/kg	NA	38.21	40900.

Location	Start depth	End depth	Analyte	Result	Unit	Mdl/rl	Background	Wrw al
CG47-054	0.0	0.5	Arsenic	22	mg/kg	NA	13.14	22.2
CG47-054	0.0	0.5	Copper	340	mg/kg	NA	38.21	40900.
CG47-054	0.0	0.5	Lead	41	mg/kg	NA	24.97	1000.0
CG47-054	0.0	0.5	Zinc	150	mg/kg	NA	139.1	307000

Location	Start depth	End depth	Analyte	Result	Unit	Mdl/rl	Background	Wrw al
CG47-051	0.0	0.5	Copper	140	mg/kg	NA	38.21	40900.
CG47-051	0.0	0.5	Lead	26	mg/kg	NA	24.97	1000.0

KEY

- Remediated Sampling Location
- Greater than WRW AL
- Greater than RL or BGM+2SD
- 700-6 hot spot
- IHSS
- PAC
- Standing building
- Demolished building
- Tank
- Stream
- Paved road
- NPWL
- OPWL

N

Scale = 1:225

5 0 5 10 15 20 Feet

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: RADMS

Prepared for: KAISER•HILL COMPANY

Date: 10.20.04

File: w:\projects\fy2004\700-6\700-6_Closeout_AV\700-6_finalcr_10-14-04.apr

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4.0 CONFIRMATION SAMPLING

Five confirmation samples were collected from each excavation and analyzed for metals at an off-Site laboratory. Confirmation samples were collected from the centers of the excavation sidewalls and bottoms. Analytical results greater than RLs or BGM+2SDs are presented in Table 10 and shown on Figure 6. All metal concentrations in the confirmation samples were less than WRW ALs, except arsenic which was detected at a single sampling location (CG47-052) at a concentration of 29 mg/kg (slightly above the WRW AL of 22.2 mg/kg).

Table 10
IHSS Group 700-6 Accelerated Action Confirmation Sampling Results Greater Than RLs or BGM+2SDs

Sampling Location	Analyte	Unit	Result	RL	BGM+2SD	WRW AL	>BGM+2SD	>WRW
CG47-025 Excavation								
North Wall CG47-045	Copper	mg/kg	47.000	NA	38.210	40900	Yes	No
South Wall CG47-046	Copper	mg/kg	57.000	NA	38.210	40900	Yes	No
East Wall CG47-048	Copper	mg/kg	61.000	NA	38.210	40900	Yes	No
	Lead	mg/kg	33.000	NA	24.970	1000	Yes	No
SS801993 Excavation								
North Wall CG47-050	Arsenic	mg/kg	19.000	NA	38.210	13.140	Yes	No
	Copper	mg/kg	310.000	NA	38.210	40900	Yes	No
	Lead	mg/kg	100.000	NA	24.970	1000	Yes	No
South Wall CG47-051	Copper	mg/kg	140.000	NA	32.100	40900	Yes	No
	Lead	mg/kg	26.000	NA	24.970	1000	Yes	No
East Wall CG47-052	**Arsenic***	**mg/kg**	**29.000**	**NA**	13.140	**22.2**	**Yes**	**Yes**
	Copper	mg/kg	340.000	NA	38.210	40900	Yes	No
	Lead	mg/kg	43.000	NA	24.970	1000	Yes	No
	Zinc	mg/kg	210.000	NA	139.100	307000	Yes	No
West Wall CG47-053	Arsenic	mg/kg	14.000	NA	13.140	22.2	Yes	No
	Copper	mg/kg	69.000	NA	38.210	40900	Yes	No
Bottom CG47-054	Arsenic	mg/kg	22.000	NA	13.140	22.2	Yes	No
	Copper	mg/kg	340.000	NA	38.210	40900	Yes	No
	Lead	mg/kg	41.000	NA	24.970	1000	Yes	No
	Zinc	mg/kg	150.000	NA	139.100	307000	Yes	No

*Analytes in bold exceeded their respective WRW AL.

Arsenic concentrations greater than the WRW AL were not detected in soil collected from the same interval (0 to 0.5 ft bgs) at any of the confirmation or unremediated characterization sampling locations in the vicinity of CG47-052. Of the three confirmation samples, one (CG47-051) had no arsenic concentrations above the BGM+2SDs of 10.090 mg/kg, and the remaining two (CG47-053 and CG47-050) had concentrations of 14 and 19 mg/kg, respectively.

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Of the two characterization samples, one had no arsenic concentrations above the BGM+2SDs (CH47-009), and one had a concentration of 18 mg/kg (CH47-007). Arsenic concentrations in subsurface samples collected from these two sampling locations were less than BGM+2SDs and 15 mg/kg, respectively.

In accordance with RFCA, non-radiological SORs were not calculated for confirmation samples because:

- Nonradionuclide SORs are only calculated for soil to a depth of 6 inches,
- SORs are only calculated when analytes exceed 10 percent of their WRW AL; and,
- SORs do not include arsenic.

As shown in Table 10, arsenic is the only analyte detected in the confirmation samples at concentrations greater than 10 percent of the WRW AL.

5.0 RCRA UNIT CLOSURE

Not applicable.

6.0 SUBSURFACE SOIL RISK SCREEN

The SSRS follows the steps identified in Figure 3 of Attachment 5 of RFCA (DOE et al. 2003).

Screen 1 – Are the COC concentrations below RFCA Table 3 Soil ALs for the WRW?

No. As shown in Tables 8 and 10, the chromium concentration at characterization sampling location CG47-011, the benzo(a)pyrene concentrations at characterization sampling locations CF47-008 and CH47-010, and the arsenic concentration in soil at confirmation sampling location CG47-052 are greater than the WRW ALs.

Screen 2 – Is there a potential for subsurface soil to become surface soil (landslides and erosion areas identified on Figure 1 of RFCA (DOE et. al 2003).

No. IHSS Group 700-6 sites are not located in an area susceptible to landslides or high erosion based on RFCA Attachment 5, Figure 1.

Screen 3 – Does subsurface soil contamination for radionuclides exceed criteria defined in RFCA Modification Section 5.3 and Attachment 14?

No. As shown in Table 3, radionuclide activities are well below soil WRW ALs. Additionally, Attachment 14 is specific to OPWL and is not applicable to IHSS Group 700-6.

Screen 4 – Is there an environmental pathway and sufficient quantity of COCs that would cause an exceedance of the surface water standards?

Contaminant migration via surface runoff and groundwater are two possible pathways whereby surface water could become contaminated from IHSS Group 700-6 COCs. Run-off from IHSS Group 700-6 is conveyed via storm drains north and overland flow into North Walnut Creek through Gauging Station 32 (upstream of North Walnut Creek) (DOE 2003f). Contaminant loadings from the drainage area around IHSS Group 700-6 are monitored at GS32. The nearest

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RFCA Surface Water Point of Evaluation (POE) is SW093, which is located in North Walnut Creek and receives runoff from a large part of the IA, including IHSS Group 700-7 (DOE 2003f). Monitoring results indicate that plutonium and americium loadings at GS32 and SW093 have increased recently, apparently related to increased erosion occurring within the upstream project areas (personal communication, Robert Nininger to Gerard Kelly, July 17, 2004). The increased total suspended solids in the surface water have resulted in reportable concentrations of actinides at SW093 (June 15, 2004, presentation to RFCA Coordinators, updated with available data on June 29, 2004). Related source evaluations will continue and, based on the evaluation findings, appropriate mitigative measures will be implemented. Erosion controls have already been put in place.

The groundwater monitoring wells in the vicinity of IHSS Group 700-6 are Wells 00500, 209289, and 209389. Data indicate that manganese concentrations in Well 00500 have exceeded the RFCA Tier II groundwater AL and 1,1-dichloroethene has exceeded the RFCA Tier II groundwater AL in Well 209389. Manganese was detected at concentrations greater than BGM+2SDs in subsurface soil at IHSS Group 700-6 but 1,1-dichloroethene was not detected at IHSS Group 700-6.

Groundwater contamination in the IHSS Group 700-6 area likely has multiple sources but primarily is a result of the Solar Evaporation Ponds Plume and the Carbon Tetrachloride Plume (DOE 2003c). Separate sources exist for VOCs in the Solar Evaporation Ponds (SEP) area north and east of IHSS Group 700-6 that are distinct from this IHSS Group (DOE 2004b). The VOC concentrations in soil within the IHSS Group do not exceed soil ALs and are not considered a significant factor in groundwater contamination at this location. Further groundwater evaluation will be conducted as part of the groundwater Interim Measure/Interim Remedial Action (IM/IRA).

Residual COC concentrations in the subsurface at IHSS Group 700-6 are present at concentrations greater than RLs and BGM+2SDs. Residual contaminant concentrations in subsurface soil greater than WRW ALs are limited to three analytes (arsenic, chromium, and benzo(a)pyrene) at three characterization sampling locations and one confirmation sampling location. Concentrations greater than the WRW AL remaining in subsurface soil include arsenic at 1 ft bgs, chromium at 0.5-0.8 ft bgs, and benzo(a)pyrene at 0.5-2.5 ft bgs and 8-8.5 ft bgs. While residual contamination could impact surface water, the lack of a viable pathway makes this unlikely for the following reasons:

- IHSS Group 700-6 is not in an area susceptible to erosion in accordance with RFCA Attachment 5, Figure 1.
- In addition, the potential for erosion at the site was minimized because the excavations were backfilled immediately after remediation and the site was regarded.
- VOC concentrations in subsurface soil were very low.
- PAH and metal concentrations greater than WRW ALs remain in subsurface soil, however PAHs have low solubility and generally sorb to particulates, and metals are relatively immobile in groundwater.
- It is not anticipated PAHs or metals in subsurface soil will affect groundwater or surface water; currently, there are no groundwater plumes in the area as a result of PAHs or metals,

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- Potential groundwater to surface water transport is evaluated in the groundwater IM/IRA.

7.0 STEWARDSHIP EVALUATION

The IHSS Group 700-6 stewardship evaluation was based on current site conditions.

7.1 Current Site Conditions

Based on the accelerated action characterization and remediation activities, the following conditions exist at the IHSS Group 700-6 sites:

- At sampling locations CG47-025 and SS801993, areas of surface soil containing arsenic concentrations greater than the WRW AL were removed.
- Residual contaminant concentrations greater than RLs or BGM+2SDs remain in surface and subsurface soil located throughout IHSS Group 700-6. Residual contaminant concentrations greater than WRW ALs are limited to three analytes (arsenic, benzo(a)pyrene, and chromium) and soil at six characterization sampling locations and one confirmation sampling location. Arsenic concentrations greater than the WRW AL remain in surface soil (0 to 0.5 ft bgs) and subsurface soil (0 to 1 ft bgs), chromium in subsurface soil (0.5-0.8 ft bgs), and benzo(a)pyrene in surface soil (0-0.5 ft bgs) and subsurface soil(0.5-2.5 ft bgs and 8-8.5 ft bgs). Based on application of the hot spot methodology and the SSRS, soil at these seven locations does not require remedial action.

7.2 Near-Term Management Recommendations

Contaminant concentrations in soil remaining at the IHSS Group 700-6 sites do not require additional accelerated action. Near-term management actions are recommended because residual contaminant concentrations greater than RLs or BGM+2SDs remain in surface and subsurface soil at the IHSS Group 700-6 sites. The following near-term management actions are recommended:

- Access to the sites will be restricted.
- Soil excavation will be controlled.
- Groundwater pumping will be prohibited.

Restrictions on access to the sites, controls on soil excavation, and the prohibition on groundwater pumping will remain in force until long-term management actions are implemented.

7.3 Long-Term Stewardship Recommendations

Based on the remaining environmental conditions discussed above, the long-term stewardship actions recommended for the IHSS Group 700-6 sites are the same as the near-term management actions discussed. Through the imposition of physical and institutional controls, site access and soil excavation will be restricted, and groundwater pumping will be prohibited. Additional environmental engineering or monitoring activities are not required or recommended for soil at the Group 700-6 sites.

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The IHSS Group 700-6 sites will be evaluated as part of the Accelerated Action Ecological Screening Evaluation (AAESE) and Sitewide Comprehensive Risk Assessment (CRA). The CRA is part of the RFI/RI and Corrective Measures Study/Feasibility Study (CMS/FS) that will be conducted for RFETS. If additional long-term stewardship actions are determined to be necessary, they will be included in the preferred alternative that will be presented in the Proposed Plan. The final long-term stewardship actions recommended for IHSS Group 700-6 will be summarized in the Rocky Flats Long-Term Stewardship Strategy and will be contained in the Corrective Action Decision/Record of Decision (CAD/ROD), any post-closure Colorado Hazardous Waste Act (CHWA) permit that may be required, and any post-RFCA agreement.

8.0 DEVIATIONS FROM THE ER RSOP

There were no deviations from the ER RSOP.

9.0 WASTE MANAGEMENT

The combined total of approximately 1 cubic yard of soil was removed from the two excavations and stored in a single Industrial Packaging (IP) container located on Site. The excavated soil is being managed as low-level mixed waste by the Material Stewardship group. All of the waste management activities associated with soil removed from the excavations at this site are recorded in the Waste and Environmental Management System (WEMS) database used to track and control the inventory, movement, and various waste management activities for waste packages on Site, and shipments to offsite facilities.

10.0 SITE RECLAMATION

The excavations were surveyed, backfilled with clean Site soil, and prepared for use as a staging area for remediation activities planned at IHSS 118.1. Documentation regarding backfilling of the excavations is provided in the ER Regulatory Contact Record dated July 30, 2004 (Appendix B).

11.0 POST-ACCELERATED ACTION CONDITIONS

The presence of residual contamination in soil at the IHSS Group 700-6 sites is based on accelerated action characterization and confirmation sampling results. Small areas of surface soil at sampling locations CG47-025 and SS801993 were excavated because arsenic concentrations were more than three times the WRW AL. The excavations were backfilled with clean Site soil. Analytical results of the confirmation sampling of the excavations indicated metal concentrations, including arsenic, were below WRW ALs except at sampling location CG47-052, where the arsenic concentration of 29 mg/kg was slightly greater than the WRW AL of 22.2 mg/kg.

Residual contaminant concentrations greater than WRW ALs are limited to three analytes (arsenic, benzo(a)pyrene, and chromium) and soil at six characterization sampling locations and one confirmation sampling location. Arsenic concentrations greater than the WRW AL remain in surface (0 to 0.5 ft bgs) and subsurface (1 ft bgs) soil, chromium in subsurface (0.5-0.8 ft bgs) soil, and benzo(a)pyrene in surface (0-0.5 ft bgs) and subsurface (0.5-2.5 ft bgs and 8-8.5 ft bgs)

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soil. Based on application of the hot spot methodology and SSRS, soil at these locations does not require further accelerated action.

12.0 NO LONGER REPRESENTATIVE SAMPLING LOCATIONS

The characterization surface soil data from two sampling locations are considered NLR because the soil was excavated and removed from the site during the remediation process. The NLR sampling locations are:

- CG47-025 - Easting 2084104.893 Northing 750802.970 and Interval 0 to 0.5 ft bgs; and
- SS801993 - Easting 2084154.000 Northing 750783.870 and Interval 0 to 0.25 ft bgs.

13.0 DATA QUALITY ASSESSMENT

The data quality objectives (DQOs) for this project are described in the IASAP (DOE 2001). All DQOs for this project were achieved based on the following:

- Regulatory agency-approved sampling program design, specifically IASAP Addendum #IA-03-18 (approval letter dated October 31, 2003 [CDPHE 2003]) and ER RSOP Notification #04-17 (approval letter dated July 27, 2004 [CDPHE 2004]);
- Samples collected in accordance with the IASAP (DOE 2001); and
- DQA conducted as documented in the following sections.

13.1 Data Quality Assessment Process

The DQA process ensures that the type, quantity, and quality of environmental data used in decision making are defensible, and is based on the following guidance and requirements:

- EPA, 1994a, Guidance for the Data Quality Objective Process, QA/G-4;
- EPA, 1998, Guidance for the Data Quality Assessment Process; Practical Methods for Data Analysis, QA/G-9; and
- DOE, 1999, Quality Assurance, Order 414.1A.

Verification and validation (V&V) of the data are the primary components of the DQA. The final data are compared with original project DQOs and evaluated with respect to project decisions; uncertainty within the decisions; and quality criteria required for the data, specifically precision, accuracy, representativeness, completeness, comparability, and sensitivity (PARCCS). Validation criteria are consistent with the following RFETS-specific documents and industry guidelines:

- EPA, 1994b, USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review, 540/R-94/012;
- EPA, 1994c, USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review, 540/R-94/013;
- Kaiser-Hill Company, L.L.C. (K-H) V&V Guidelines:
  - General Guidelines for Data Verification and Validation, DA-GR01-v2, 2002a

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- V&V Guidelines for Isotopic Determinations by Alpha Spectrometry, DA-RC01-v2, 2002b
- V&V Guidelines for Volatile Organics, DA-SS01-v3, 2002c
- V&V Guidelines for Semivolatile Organics, DA-SS02-v3, 2002d
- V&V Guidelines for Metals, DA-SS05-v3, 2002e; and
- Lockheed-Martin, 1997, Evaluation of Radiochemical Data Usability, ES/ER/MS-5.

This report will be submitted to the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) AR for permanent storage 30 days after being provided to the Colorado Department of Public Health and Environment (CDPHE) and EPA.

13.2 Verification and Validation of Results

Verification ensures that data produced and used by the project are documented and traceable in accordance with quality requirements. Validation consists of a technical review of all data that directly support the project decisions so that any limitations of the data relative to project goals are delineated and the associated data are qualified accordingly. The V&V process defines the criteria that constitute data quality, namely PARCCS parameters. Data traceability and archival are also addressed. V&V criteria include the following:

- Chain-of-custody;
- Preservation and hold times;
- Instrument calibrations;
- Preparation blanks;
- Interference check samples (metals);
- Matrix spikes/matrix spike duplicates (MS/MSDs);
- Laboratory control samples (LCSs);
- Field duplicate measurements;
- Chemical yield (radiochemistry);
- Required quantitation limits/minimum detectable activities (sensitivity of chemical and radiochemical measurements, respectively); and
- Sample analysis and preparation methods.

Evaluation of V&V criteria ensures that PARCCS parameters are satisfactory (that is, within tolerances acceptable to the project). Satisfactory V&V of laboratory quality controls are captured through application of validation "flags" or qualifiers to individual records.

Raw, hard-copy data (for example, individual analytical data packages) are currently filed by report identification number (RIN) and maintained by K-H Analytical Services Division (ASD); older hard copies may reside in the Federal Center in Lakewood, Colorado. Electronic data are stored in the RFETS Soil Water Database (SWD).

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The data sets addressed in this report are included on the enclosed CD in Microsoft Access 2000 format.

13.3 Accuracy

The following measures of accuracy were evaluated:

- LCSs;
- Surrogates;
- Field blanks; and
- Sample MSs.

Results are compared to method requirements and project goals. The results of these comparisons are summarized for RFCA COCs where the result could impact project decisions. Particular attention is paid to those values near ALs when QC results could indicate unacceptable levels of uncertainty for decision-making purposes.

LCS Evaluation

The frequency of LCS measurements is presented in Table 11. As indicated, LCS analyses were run for all methods except gamma spectroscopy and SW-846 6200. The on-site laboratories are not required to provide these data.

Table 11
LCS Summary

Test Method	Laboratory Batch	LCS
Alpha Spectroscopy	4121231	Yes
Alpha Spectroscopy	4121241	Yes
Alpha Spectroscopy	4121245	Yes
Alpha Spectroscopy	4128362	Yes
Alpha Spectroscopy	4128367	Yes
Alpha Spectroscopy	4128371	Yes
Alpha Spectroscopy	4164066	Yes
Alpha Spectroscopy	4164068	Yes
Alpha Spectroscopy	4164069	Yes
SW-846 6010	4119306	Yes
SW-846 6010	4119307	Yes
SW-846 6010	4119309	Yes
SW-846 6010	4119314	Yes
SW-846 6010	4120549	Yes
SW-846 6010	4120557	Yes
SW-846 6010	4121298	Yes
SW-846 6010	4121309	Yes
SW-846 6010	4121383	Yes
SW-846 6010	4132651	Yes
SW-846 6010	4133129	Yes

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Test Method	Laboratory Batch	LCS
SW-846 6010	4156462	Yes
SW-846 6010	4157057	Yes
SW-846 6010	4160250	Yes
SW-846 6010	4160434	Yes
SW-846 6010	4162313	Yes
SW-846 6010	4162316	Yes
SW-846 6010	4162318	Yes
SW-846 6010	4220057	Yes
SW-846 6010	4229120	Yes
SW-846 8260	4116262	Yes
SW-846 8260	4118457	Yes
SW-846 8260	4119124	Yes
SW-846 8260	4157048	Yes
SW-846 8260	MS1 VOA_040416A	Yes
SW-846 8260	MS1 VOA_040419A	Yes
SW-846 8260	MS1 VOA_040601A	Yes
SW-846 8260	MS1 VOA_040601B	Yes
SW-846 8260	MS1 VOA_040602A	Yes
SW-846 8260	MS2 VOA_040420A	Yes
SW-846 8260	MS3 VOA_040415B	Yes
SW-846 8260	MS3 VOA_040421A	Yes
SW-846 8260	MS3 VOA_040422A	Yes
SW-846 8260	MS3 VOA_040506A	Yes
SW-846 8260	MS3 VOA_040603A	Yes
SW-846 8270	4114619	Yes
SW-846 8270	4114620	Yes
SW-846 8270	4117483	Yes
SW-846 8270	4118551	Yes
SW-846 8270	4132661	Yes
SW-846 8270	4156449	Yes
SW-846 8270	4159593	Yes
SW-846 8270	4160422	Yes

LCS results are summarized in Table 12. The minimum and maximum LCS recoveries are tabulated by chemical for the entire project. LCS results that were outside of tolerances were reviewed to determine whether a potential bias might be indicated. LCS recoveries are not indicative of matrix effects because they are not prepared using Site samples. LCS results do indicate whether the laboratory may be introducing a bias in the results. Recoveries reported above the upper limit may indicate the actual sample results are less than reported. Because this is environmentally conservative, no further action is needed.

The analytes with potentially unacceptable, low recoveries were evaluated in the following manner. If the maximum sample result divided by the lowest LCS recovery for that analyte is less than the WRW AL, no further action is taken because any indicated bias is not great enough

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to affect project decisions. In summary, LCS recoveries did not impact project decisions. Any qualification of individual results because of LCS performance exceeding upper or lower tolerance limits is captured in the V&V flags, described in Section 13.5.

Surrogate Evaluation

The frequency of surrogate measurements, relative to each laboratory batch, is given in Table 13. The minimum and maximum surrogate results are also tabulated, by chemical, for the entire project. Surrogates are added to every SVOC and VOC sample, and, therefore, surrogate recoveries only impact individual samples. Unacceptable surrogate recoveries can indicate potential matrix effects. Surrogate recoveries reported above 100 percent may indicate the actual sample results are less than reported. Because this is environmentally conservative, no further action is needed. Therefore, only the lowest recoveries were evaluated. If the maximum sample result divided by the lowest surrogate recovery is less than the WRW AL for the COC, no further action is taken because any indicated bias is not great enough to affect project decisions.

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Table 12
LCS Evaluation Summary

Test Method	CAS No.	Analyte	Minimum Result	Maximum Result	Unit
SW-846 6010	7429-90-5	Aluminum	95	104	%REC
SW-846 6010	7440-36-0	Antimony	87	99	%REC
SW-846 6010	7440-38-2	Arsenic	85	100	%REC
SW-846 6010	7440-39-3	Barium	96	105	%REC
SW-846 6010	7440-41-7	Beryllium	98	107	%REC
SW-846 6010	7440-43-9	Cadmium	83	106	%REC
SW-846 6010	7440-47-3	Chromium	86	104	%REC
SW-846 6010	7440-48-4	Cobalt	85	105	%REC
SW-846 6010	7440-50-8	Copper	90	102	%REC
SW-846 6010	7439-89-6	Iron	96	101	%REC
SW-846 6010	7439-92-1	Lead	87	105	%REC
SW-846 6010	7439-93-2	Lithium	88	105	%REC
SW-846 6010	7439-96-5	Manganese	96	104	%REC
SW-846 6010	7439-97-6	Mercury	97	104	%REC
SW-846 6010	7439-98-7	Molybdenum	86	106	%REC
SW-846 6010	7440-02-0	Nickel	87	105	%REC
SW-846 6010	7782-49-2	Selenium	86	103	%REC
SW-846 6010	7440-22-4	Silver	91	100	%REC
SW-846 6010	7440-24-6	Strontium	93	105	%REC
SW-846 6010	7440-31-5	Tin	87	107	%REC
SW-846 6010	11-09-6	Uranium, Total	95	108	%REC
SW-846 6010	7440-62-2	Vanadium	88	102	%REC
SW-846 6010	7440-66-6	Zinc	93	109	%REC
SW-846 8260	71-55-6	1,1,1-Trichloroethane	86	108.6	%REC
SW-846 8260	79-34-5	1,1,2,2-Tetrachloroethane	82	108.8	%REC
SW-846 8260	79-00-5	1,1,2-Trichloroethane	81.42	110	%REC
SW-846 8260	75-34-3	1,1-Dichloroethane	99.4	119.7	%REC
SW-846 8260	75-35-4	1,1-Dichloroethene	103	136	%REC
SW-846 8260	95-50-1	1,2-Dichlorobenzene	88	112.2	%REC
SW-846 8260	107-06-2	1,2-Dichloroethane	80.23	108.9	%REC
SW-846 8260	78-87-5	1,2-Dichloropropane	100	117.8	%REC
SW-846 8260	106-46-7	1,4-Dichlorobenzene	91	112.2	%REC
SW-846 8260	78-93-3	2-Butanone	55.29	133	%REC
SW-846 8260	108-10-1	4-Methyl-2-pentanone	68.83	105	%REC
SW-846 8260	67-64-1	Acetone	52.08	138	%REC
SW-846 8260	71-43-2	Benzene	102	119	%REC
SW-846 8260	75-27-4	Bromodichloromethane	85.34	111.4	%REC
SW-846 8260	75-25-2	Bromoform	77.12	104	%REC
SW-846 8260	74-83-9	Bromomethane	98.64	160.2	%REC
SW-846 8260	75-15-0	Carbon Disulfide	68	152	%REC
SW-846 8260	56-23-5	Carbon Tetrachloride	84	109.2	%REC

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Test Method	CAS No.	Analyte	Minimum Result	Maximum Result	Unit
SW-846 8260	108-90-7	Chlorobenzene	93.01	111	%REC
SW-846 8260	75-00-3	Chloroethane	94	158.5	%REC
SW-846 8260	67-66-3	Chloroform	91.83	107.2	%REC
SW-846 8260	74-87-3	Chloromethane	83	251.3	%REC
SW-846 8260	10061-01-5	cis-1,3-Dichloropropene	91.17	111	%REC
SW-846 8260	124-48-1	Dibromochloromethane	86.76	106.9	%REC
SW-846 8260	100-41-4	Ethylbenzene	94	119	%REC
SW-846 8260	75-09-2	Methylene chloride	102.1	118.4	%REC
SW-846 8260	100-42-5	Styrene	92	114.2	%REC
SW-846 8260	127-18-4	Tetrachloroethene	86.99	117.7	%REC
SW-846 8260	108-88-3	Toluene	94	140.9	%REC
SW-846 8260	10061-02-6	trans-1,3-Dichloropropene	90	112.5	%REC
SW-846 8260	79-01-6	Trichloroethene	94.7	112.6	%REC
SW-846 8260	75-01-4	Vinyl chloride	104	221.4	%REC
SW-846 8260	1330-20-7	Xylene	92	116.8	%REC
SW-846 8270	120-82-1	1,2,4-Trichlorobenzene	62	81	%REC
SW-846 8270	95-95-4	2,4,5-Trichlorophenol	67	82	%REC
SW-846 8270	88-06-2	2,4,6-Trichlorophenol	64	84	%REC
SW-846 8270	120-83-2	2,4-Dichlorophenol	65	81	%REC
SW-846 8270	105-67-9	2,4-Dimethylphenol	66	85	%REC
SW-846 8270	51-28-5	2,4-Dinitrophenol	35	63	%REC
SW-846 8270	121-14-2	2,4-Dinitrotoluene	66	80	%REC
SW-846 8270	606-20-2	2,6-Dinitrotoluene	65	81	%REC
SW-846 8270	91-58-7	2-Chloronaphthalene	57	80	%REC
SW-846 8270	95-57-8	2-Chlorophenol	63	86	%REC
SW-846 8270	91-57-6	2-Methylnaphthalene	63	80	%REC
SW-846 8270	95-48-7	2-Methylphenol	63	82	%REC
SW-846 8270	88-74-4	2-Nitroaniline	68	86	%REC
SW-846 8270	91-94-1	3,3'-Dichlorobenzidine	54	70	%REC
SW-846 8270	534-52-1	4,6-Dinitro-2-methylphenol	47	70	%REC
SW-846 8270	106-47-8	4-Chloroaniline	34	70	%REC
SW-846 8270	106-44-5	4-Methylphenol	68	85	%REC
SW-846 8270	100-02-7	4-Nitrophenol	58	103	%REC
SW-846 8270	83-32-9	Acenaphthene	58	76	%REC
SW-846 8270	120-12-7	Anthracene	67	87	%REC
SW-846 8270	56-55-3	Benzo(a)anthracene	61	76	%REC
SW-846 8270	50-32-8	Benzo(a)pyrene	67	80	%REC
SW-846 8270	205-99-2	Benzo(b)fluoranthene	64	78	%REC
SW-846 8270	207-08-9	Benzo(k)fluoranthene	64	83	%REC
SW-846 8270	65-85-0	Benzoic Acid	23	58	%REC
SW-846 8270	100-51-6	Benzyl Alcohol	64	88	%REC
SW-846 8270	111-44-4	bis(2-Chloroethyl)ether	53	81	%REC
SW-846 8270	39638-32-9	bis(2-Chloroisopropyl)ether	61	83	%REC

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Test Method	CAS No.	Analyte	Minimum Result	Maximum Result	Unit
SW-846 8270	117-81-7	bis(2-Ethylhexyl)phthalate	59	81	%REC
SW-846 8270	85-68-7	Butylbenzylphthalate	56	80	%REC
SW-846 8270	218-01-9	Chrysene	61	76	%REC
SW-846 8270	84-74-2	Di-n-butylphthalate	61	85	%REC
SW-846 8270	117-84-0	Di-n-octylphthalate	51	73	%REC
SW-846 8270	53-70-3	Dibenz(a,h)anthracene	60	80	%REC
SW-846 8270	132-64-9	Dibenzofuran	66	79	%REC
SW-846 8270	84-66-2	Diethylphthalate	62	76	%REC
SW-846 8270	131-11-3	Dimethylphthalate	65	80	%REC
SW-846 8270	206-44-0	Fluoranthene	61	91	%REC
SW-846 8270	86-73-7	Fluorene	63	76	%REC
SW-846 8270	118-74-1	Hexachlorobenzene	67	83	%REC
SW-846 8270	87-68-3	Hexachlorobutadiene	65	84	%REC
SW-846 8270	77-47-4	Hexachlorocyclopentadiene	25	69	%REC
SW-846 8270	67-72-1	Hexachloroethane	63	80	%REC
SW-846 8270	193-39-5	Indeno(1,2,3-cd)pyrene	58	80	%REC
SW-846 8270	78-59-1	Isophorone	61	80	%REC
SW-846 8270	86-30-6	n-Nitrosodiphenylamine	68	86	%REC
SW-846 8270	621-64-7	n-Nitrosodipropylamine	62	83	%REC
SW-846 8270	91-20-3	Naphthalene	59	80	%REC
SW-846 8270	98-95-3	Nitrobenzene	67	83	%REC
SW-846 8270	87-86-5	Pentachlorophenol	48	74	%REC
SW-846 8270	108-95-2	Phenol	61	83	%REC
SW-846 8270	129-00-0	Pyrene	56	74	%REC

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Table 13
Surrogate Recovery Summary

Number of Samples	CAS No.	Analyte	Minimum Result	Maximum Result	Unit
VOCs					
58	460-00-4	4-Bromofluorobenzene	88.87	128	%REC
58	17060-07-0	Deuterated 1,2-dichloroethane	90	131.1	%REC
58	2037-26-5	Deuterated toluene	91.13	116.3	%REC
SVOCs					
73	321-60-8	2-Fluorobiphenyl	52	82	%REC
73	367-12-4	2-Fluorophenol	37	104	%REC
73	4165-60-0	Deuterated nitrobenzene	57	102	%REC
73	1718-51-0	p-Terphenyl-d14	56	95	%REC

All IHSS Group 700-6 SVOC and VOC analyses passed this criterion. Therefore, project decisions were not impacted by SVOC or VOC surrogate recoveries. Any qualification of the data due to surrogate results is captured in the V&V flags, described in Section 13.5.

Field Blank Evaluation

Results of the field blank analyses are provided in Table 14. Detectable amounts of contaminants within the blanks, which could indicate possible cross-contamination of samples, are evaluated if the same contaminant is detected in the associated real samples. For detections, evaluation consists of multiplying the field blank results by 10 (for laboratory contaminants) or 5 (for nonlaboratory contaminants) and comparing them to WRW ALs. In this case, to be conservative, the factor used was 10 in all cases. If the field blank value is greater than the WRW AL, the real result is evaluated further.

Table 14
Field Blank Summary

QC Sample	Laboratory	CAS Number	Analyte	Detected Result	Result Unit
Trip blank	URS	108-88-3	Toluene	1.600	ug/L
Equipment blank	URS	15117-96-1	Uranium-235	0.175	pCi/g
Field blank	URS	15117-96-1	Uranium-235	0.178	pCi/g
Equipment rinse	URS	15117-96-1	Uranium-235	0.175	pCi/g
Equipment blank	URS	7440-61-1	Uranium-238	3.850	pCi/g
Field blank	URS	7440-61-1	Uranium-238	2.860	pCi/g
Equipment rinse	URS	7440-61-1	Uranium-238	3.850	pCi/g

In the IHSS Group 700-6 data, none of the results from blank analyses when multiplied by 10 exceeded their WRW ALs. Therefore, blank contamination did not adversely impact project decisions. Any qualification of the data due to field blank results are captured in the V&V flags, described in Section 13.5.

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Sample MS Evaluation

Table 15 provides a summary of the minimum and maximum MS results by chemical for the project. According to the EPA data validation guidelines (EPA 1994b), if organic MS recoveries are low, the data reviewer may use the MS and MSD results in conjunction with the QC criteria. In this case, the LCS recoveries were checked If the recovery is acceptable, no action is taken. LCS recoveries for organic analyses with potentially unacceptable, low MS recoveries were reviewed. For this project, these checks indicate no decisions were impacted for organic analytes with low MS recoveries.

For inorganics with MS recoveries greater than zero, the maximum sample results were divided by the lowest percent recovery for each analyte. If the resulting number was less than the WRW AL, decisions were not impacted. Iron, manganese, zinc, and benzoic acid had minimum percent recoveries of zero. The maximum iron result of 61,000 mg/kg is less than 20 percent of the iron WRW AL of 307,000 mg/kg. The maximum manganese and zinc results are all less than 1 percent of their WRW ALs. Benzo(a)pyrene recoveries were acceptable. These data indicate that project decisions were not impacted by the MS percent recovery of 0 for benzoic acid, iron, manganese, or zinc.

13.4 Precision

Precision is measured by evaluating both MSDs and field duplicates as described in the following sections.

Sample MSD Evaluation

Laboratory precision is measured through the use of MSDs, as summarized in Table 16. Analytes with the highest relative percent differences (RPDs) (greater than 35 percent) are reviewed by comparing the highest sample result to the WRW AL. For analytes with RPDs exceeding 35 percent, if the highest sample results are sufficiently below the ALs, no further action is needed.

The analytes aluminum, copper, manganese, 1,1,2,2-tetrachloroethane, 2,4-dinitrophenol, 3,3-dichlorobenzidine, 4,6-dinitro-2-methylphenol, benzo(a)anthracene, benzo(a)pyrene, benzo(k)fluoranthene, benzoic acid, chrysene, dibenz(a,h)anthracene, hexachlorocyclopentadiene, indeno(1,2,3-cd)pyrene, and naphthalene had maximum RPDs greater than 35 percent. The analytes 1,1,2,2-tetrachloroethane, 2,4-dinitrophenol, 3,3-dichlorobenzidine, and 4,6-dinitro-2-methylphenol were not detected in real samples. The maximum real results for the other analytes are sufficiently below WRW ALs to not affect project decisions.

The benzo(a)pyrene result of 7,700 mg/kg fails this criterion. However, the decision whether to remediate the area was based on SSRS criteria. For this project, this review indicates project decisions were not adversely impacted by MSD RPD values greater than 35 percent.

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Table 15
Sample MS Evaluation Summary

Test Method Name	CAS	Analyte	Min of Result	Max of Result	Result Unit	# of Samples	# of Lab Batches
SW-846 8260	71-55-6	1,1,1-Trichloroethane	81	105.2	%REC	7	7
SW-846 8260	79-34-5	1,1,2,2-Tetrachloroethane	5.78	117.9	%REC	7	7
SW-846 8260	79-00-5	1,1,2-Trichloroethane	53.1	114.4	%REC	7	7
SW-846 8260	75-34-3	1,1-Dichloroethane	82.7	105.1	%REC	7	7
SW-846 8260	75-35-4	1,1-Dichloroethene	71.4	124.4	%REC	7	7
SW-846 8260	120-82-1	1,2,4-Trichlorobenzene	54.68	84.78	%REC	7	7
SW-846 8270	120-82-1	1,2,4-Trichlorobenzene	46	71	%REC	6	6
SW-846 8260	95-50-1	1,2-Dichlorobenzene	83	98.9	%REC	7	7
SW-846 8260	107-06-2	1,2-Dichloroethane	81	108.9	%REC	7	7
SW-846 8260	78-87-5	1,2-Dichloropropane	83.58	104.7	%REC	7	7
SW-846 8260	106-46-7	1,4-Dichlorobenzene	84.31	101.4	%REC	7	7
SW-846 8270	95-95-4	2,4,5-Trichlorophenol	43	82	%REC	6	6
SW-846 8270	88-06-2	2,4,6-Trichlorophenol	44	80	%REC	6	6
SW-846 8270	120-83-2	2,4-Dichlorophenol	36	75	%REC	6	6
SW-846 8270	105-67-9	2,4-Dimethylphenol	50	80	%REC	6	6
SW-846 8270	51-28-5	2,4-Dinitrophenol	31	57	%REC	6	6
SW-846 8270	121-14-2	2,4-Dinitrotoluene	47	79	%REC	6	6
SW-846 8270	606-20-2	2,6-Dinitrotoluene	51	82	%REC	6	6
SW-846 8260	78-93-3	2-Butanone	77.93	168.8	%REC	7	7
SW-846 8270	91-58-7	2-Chloronaphthalene	49	78	%REC	6	6
SW-846 8270	95-57-8	2-Chlorophenol	38	75	%REC	6	6
SW-846 8270	91-57-6	2-Methylnaphthalene	58	74	%REC	6	6
SW-846 8270	95-48-7	2-Methylphenol	53	76	%REC	6	6
SW-846 8270	88-74-4	2-Nitroaniline	52	88	%REC	6	6
SW-846 8270	91-94-1	3,3'-Dichlorobenzidine	44	76	%REC	6	6
SW-846 8270	534-52-1	4,6-Dinitro-2-methylphenol	36	62	%REC	6	6
SW-846 8270	106-47-8	4-Chloroaniline	48	72	%REC	6	6
SW-846 8260	108-10-1	4-Methyl-2-pentanone	65.33	128.6	%REC	7	7
SW-846 8270	106-44-5	4-Methylphenol	57	76	%REC	6	6
SW-846 8270	100-02-7	4-Nitrophenol	40	103	%REC	6	6
SW-846 8270	83-32-9	Acenaphthene	56	73	%REC	6	6
SW-846 8260	67-64-1	Acetone	67.78	178.4	%REC	7	7
SW-846 6010	7429-90-5	Aluminum	1850	4820	%REC	4	4
SW-846 8270	120-12-7	Anthracene	60	80	%REC	6	6
SW-846 6010	7440-36-0	Antimony	37	70	%REC	4	4
SW-846 6010	7440-38-2	Arsenic	89	100	%REC	4	4
SW-846 6010	7440-39-3	Barium	85	111	%REC	4	4
SW-846 8260	71-43-2	Benzene	80.88	101.7	%REC	7	7
SW-846 8270	56-55-3	Benzo(a)anthracene	59	74	%REC	6	6
SW-846 8270	50-32-8	Benzo(a)pyrene	53	75	%REC	6	6
SW-846 8270	205-99-2	Benzo(b)fluoranthene	62	75	%REC	6	6
SW-846 8270	207-08-9	Benzo(k)fluoranthene	36	82	%REC	6	6

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Test Method Name	CAS	Analyte	Min of Result	Max of Result	Result Unit	# of Samples	# of Lab Batches
SW-846 8270	65-85-0	Benzoic Acid	0	53	%REC	6	6
SW-846 8270	100-51-6	Benzyl Alcohol	53	79	%REC	6	6
SW-846 6010	7440-41-7	Beryllium	94	100	%REC	4	4
SW-846 8270	111-44-4	bis(2-Chloroethyl)ether	46	72	%REC	6	6
SW-846 8270	39638-32-9	bis(2-Chloroisopropyl)ether	46	72	%REC	6	6
SW-846 8270	117-81-7	bis(2-Ethylhexyl)phthalate	43	77	%REC	6	6
SW-846 8260	75-27-4	Bromodichloromethane	80.97	107.1	%REC	7	7
SW-846 8260	75-25-2	Bromoform	87	106.9	%REC	7	7
SW-846 8260	74-83-9	Bromomethane	59.94	94	%REC	7	7
SW-846 8270	85-68-7	Butylbenzylphthalate	49	75	%REC	6	6
SW-846 6010	7440-43-9	Cadmium	79	93	%REC	4	4
SW-846 8260	75-15-0	Carbon Disulfide	57.96	91.37	%REC	7	7
SW-846 8260	56-23-5	Carbon Tetrachloride	77	103.3	%REC	7	7
SW-846 8260	108-90-7	Chlorobenzene	87.51	100.8	%REC	7	7
SW-846 8260	75-00-3	Chloroethane	58.43	92.34	%REC	7	7
SW-846 8260	67-66-3	Chloroform	86.16	106.5	%REC	7	7
SW-846 8260	74-87-3	Chloromethane	39.82	91.79	%REC	7	7
SW-846 6010	7440-47-3	Chromium	85	144	%REC	4	4
SW-846 8270	218-01-9	Chrysene	56	73	%REC	6	6
SW-846 8260	10061-01-5	cis-1,3-Dichloropropene	67.54	104.4	%REC	7	7
SW-846 6010	7440-48-4	Cobalt	89	98	%REC	4	4
SW-846 6010	7440-50-8	Copper	15	145	%REC	4	4
SW-846 8270	84-74-2	Di-n-butylphthalate	51	84	%REC	6	6
SW-846 8270	117-84-0	Di-n-octylphthalate	43	79	%REC	6	6
SW-846 8270	53-70-3	Dibenz(a,h)anthracene	40	94	%REC	6	6
SW-846 8270	132-64-9	Dibenzofuran	59	77	%REC	6	6
SW-846 8260	124-48-1	Dibromochloromethane	88	113.8	%REC	7	7
SW-846 8270	84-66-2	Diethylphthalate	49	77	%REC	6	6
SW-846 8270	131-11-3	Dimethylphthalate	49	80	%REC	6	6
SW-846 8260	100-41-4	Ethylbenzene	83.08	101	%REC	7	7
SW-846 8270	206-44-0	Fluoranthene	66	455	%REC	6	6
SW-846 8270	86-73-7	Fluorene	58	75	%REC	6	6
SW-846 8270	118-74-1	Hexachlorobenzene	43	83	%REC	6	6
SW-846 8260	87-68-3	Hexachlorobutadiene	43.61	79.37	%REC	7	7
SW-846 8270	87-68-3	Hexachlorobutadiene	46	71	%REC	6	6
SW-846 8270	77-47-4	Hexachlorocyclopentadiene	19	48	%REC	6	6
SW-846 8270	67-72-1	Hexachloroethane	50	69	%REC	6	6
SW-846 8270	193-39-5	Indeno(1,2,3-cd)pyrene	44	75	%REC	6	6
SW-846 6010	7439-89-6	Iron	0	3440	%REC	4	4
SW-846 8270	78-59-1	Isophorone	49	74	%REC	6	6
SW-846 6010	7439-92-1	Lead	59	105	%REC	4	4
SW-846 6010	7439-93-2	Lithium	97	105	%REC	4	4
SW-846 6010	7439-96-5	Manganese	0	241	%REC	4	4

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Test Method Name	CAS	Analyte	Min of Result	Max of Result	Result Unit	# of Samples	# of Lab Batches
SW-846 6010	7439-97-6	Mercury	69	131	%REC	7	7
SW-846 8260	75-09-2	Methylene chloride	80.77	108	%REC	7	7
SW-846 6010	7439-98-7	Molybdenum	88	95	%REC	4	4
SW-846 8270	86-30-6	n-Nitrosodiphenylamine	55	84	%REC	6	6
SW-846 8270	621-64-7	n-Nitrosodipropylamine	48	73	%REC	6	6
SW-846 8260	91-20-3	Naphthalene	63	91.83	%REC	7	7
SW-846 8270	91-20-3	Naphthalene	56	76	%REC	6	6
SW-846 6010	7440-02-0	Nickel	72	100	%REC	4	4
SW-846 8270	98-95-3	Nitrobenzene	52	76	%REC	6	6
SW-846 8270	87-86-5	Pentachlorophenol	33	70	%REC	6	6
SW-846 8270	108-95-2	Phenol	51	76	%REC	6	6
SW-846 8270	129-00-0	Pyrene	59	404	%REC	6	6
SW-846 6010	7782-49-2	Selenium	90	104	%REC	4	4
SW-846 6010	7440-22-4	Silver	88	102	%REC	4	4
SW-846 6010	7440-24-6	Strontium	90	129	%REC	4	4
SW-846 8260	100-42-5	Styrene	82.07	100.4	%REC	7	7
SW-846 8260	127-18-4	Tetrachloroethene	84.2	98.57	%REC	7	7
SW-846 6010	7440-31-5	Tin	85	89	%REC	4	4
SW-846 8260	108-88-3	Toluene	71.08	100	%REC	7	7
SW-846 8260	10061-02-6	trans-1,3-Dichloropropene	75.83	97.85	%REC	7	7
SW-846 8260	79-01-6	Trichloroethene	78.41	165.4	%REC	7	7
SW-846 6010	11-09-6	Uranium, Total	95	105	%REC	2	2
SW-846 6010	7440-62-2	Vanadium	99	116	%REC	4	4
SW-846 8260	75-01-4	Vinyl chloride	42.51	99	%REC	7	7
SW-846 8260	1330-20-7	Xylene	83.27	102.7	%REC	7	7
SW-846 6010	7440-66-6	Zinc	0	136	%REC	4	4

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Table 16
Sample MSD Evaluation Summary

Test Method	CAS Number	Analyte	Max of RPD (%)
SW-846 8260	71-55-6	1,1,1-Trichloroethane	8
SW-846 8260	79-34-5	1,1,2,2-Tetrachloroethane	73
SW-846 8260	79-00-5	1,1,2-Trichloroethane	15
SW-846 8260	75-34-3	1,1-Dichloroethane	8
SW-846 8260	75-35-4	1,1-Dichloroethene	9
SW-846 8260	120-82-1	1,2,4-Trichlorobenzene	11
SW-846 8270	120-82-1	1,2,4-Trichlorobenzene	18
SW-846 8260	95-50-1	1,2-Dichlorobenzene	13
SW-846 8260	107-06-2	1,2-Dichloroethane	9
SW-846 8260	78-87-5	1,2-Dichloropropane	8
SW-846 8260	106-46-7	1,4-Dichlorobenzene	14
SW-846 8270	95-95-4	2,4,5-Trichlorophenol	35
SW-846 8270	88-06-2	2,4,6-Trichlorophenol	26
SW-846 8270	120-83-2	2,4-Dichlorophenol	27
SW-846 8270	105-67-9	2,4-Dimethylphenol	25
SW-846 8270	51-28-5	2,4-Dinitrophenol	41
SW-846 8270	121-14-2	2,4-Dinitrotoluene	29
SW-846 8270	606-20-2	2,6-Dinitrotoluene	29
SW-846 8260	78-93-3	2-Butanone	14
SW-846 8270	91-58-7	2-Chloronaphthalene	25
SW-846 8270	95-57-8	2-Chlorophenol	15
SW-846 8270	91-57-6	2-Methylnaphthalene	14
SW-846 8270	95-48-7	2-Methylphenol	15
SW-846 8270	88-74-4	2-Nitroaniline	31
SW-846 8270	91-94-1	3,3'-Dichlorobenzidine	39
SW-846 8270	534-52-1	4,6-Dinitro-2-methylphenol	40
SW-846 8270	106-47-8	4-Chloroaniline	22
SW-846 8260	108-10-1	4-Methyl-2-pentanone	17
SW-846 8270	106-44-5	4-Methylphenol	15
SW-846 8270	100-02-7	4-Nitrophenol	18
SW-846 8270	83-32-9	Acenaphthene	13
SW-846 8260	67-64-1	Acetone	22
SW-846 6010	7429-90-5	Aluminum	37
SW-846 8270	120-12-7	Anthracene	28
SW-846 6010	7440-36-0	Antimony	3
SW-846 6010	7440-38-2	Arsenic	2
SW-846 6010	7440-39-3	Barium	7
SW-846 8260	71-43-2	Benzene	8
SW-846 8270	56-55-3	Benzo(a)anthracene	49
SW-846 8270	50-32-8	Benzo(a)pyrene	50
SW-846 8270	205-99-2	Benzo(b)fluoranthene	18
SW-846 8270	207-08-9	Benzo(k)fluoranthene	74

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Test Method	CAS Number	Analyte	Max of RPD (%)
SW-846 8270	65-85-0	Benzoic Acid	38
SW-846 8270	100-51-6	Benzyl Alcohol	16
SW-846 6010	7440-41-7	Beryllium	5
SW-846 8270	111-44-4	bis(2-Chloroethyl)ether	17
SW-846 8270	39638-32-9	bis(2-Chloroisopropyl)ether	19
SW-846 8270	117-81-7	bis(2-Ethylhexyl)phthalate	24
SW-846 8260	75-27-4	Bromodichloromethane	7
SW-846 8260	75-25-2	Bromoform	12
SW-846 8260	74-83-9	Bromomethane	11
SW-846 8270	85-68-7	Butylbenzylphthalate	12
SW-846 6010	7440-43-9	Cadmium	14
SW-846 8260	75-15-0	Carbon Disulfide	8
SW-846 8260	56-23-5	Carbon Tetrachloride	11
SW-846 8260	108-90-7	Chlorobenzene	8
SW-846 8260	75-00-3	Chloroethane	19
SW-846 8260	67-66-3	Chloroform	8
SW-846 8260	74-87-3	Chloromethane	6
SW-846 6010	7440-47-3	Chromium	35
SW-846 8270	218-01-9	Chrysene	57
SW-846 8260	10061-01-5	cis-1,3-Dichloropropene	9
SW-846 6010	7440-48-4	Cobalt	4
SW-846 6010	7440-50-8	Copper	61
SW-846 8270	84-74-2	Di-n-butylphthalate	31
SW-846 8270	117-84-0	Di-n-octylphthalate	33
SW-846 8270	53-70-3	Dibenz(a,h)anthracene	50
SW-846 8270	132-64-9	Dibenzofuran	18
SW-846 8260	124-48-1	Dibromochloromethane	9
SW-846 8270	84-66-2	Diethylphthalate	28
SW-846 8270	131-11-3	Dimethylphthalate	30
SW-846 8260	100-41-4	Ethylbenzene	9
SW-846 8270	206-44-0	Fluoranthene	27
SW-846 8270	86-73-7	Fluorene	17
SW-846 8270	118-74-1	Hexachlorobenzene	31
SW-846 8270	87-68-3	Hexachlorobutadiene	19
SW-846 8260	87-68-3	Hexachlorobutadiene	12
SW-846 8270	77-47-4	Hexachlorocyclopentadiene	53
SW-846 8270	67-72-1	Hexachloroethane	25
SW-846 8270	193-39-5	Indeno(1,2,3-cd)pyrene	61
SW-846 6010	7439-89-6	Iron	27
SW-846 8270	78-59-1	Isophorone	15
SW-846 6010	7439-92-1	Lead	10
SW-846 6010	7439-93-2	Lithium	3
SW-846 6010	7439-96-5	Manganese	75

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Test Method	CAS Number	Analyte	Max of RPD (%)
SW-846 6010	7439-97-6	Mercury	32
SW-846 8260	75-09-2	Methylene chloride	9
SW-846 6010	7439-98-7	Molybdenum	1
SW-846.8270	86-30-6	n-Nitrosodiphenylamine	28
SW-846 8270	621-64-7	n-Nitrosodipropylamine	19
SW-846 8260	91-20-3	Naphthalene	25
SW-846 8270	91-20-3	Naphthalene	49
SW-846 6010	7440-02-0	Nickel	21
SW-846 8270	98-95-3	Nitrobenzene	17
SW-846 8270	87-86-5	Pentachlorophenol	33
SW-846 8270	108-95-2	Phenol	23
SW-846 8270	129-00-0	Pyrene	19
SW-846 6010	7782-49-2	Selenium	1
SW-846 6010	7440-22-4	Silver	24
SW-846 6010	7440-24-6	Strontium	9
SW-846 8260	100-42-5	Styrene	7
SW-846 8260	127-18-4	Tetrachloroethene	8
SW-846 6010	7440-31-5	Tin	1
SW-846 8260	108-88-3	Toluene	9
SW-846 8260	10061-02-6	trans-1,3-Dichloropropene	9
SW-846 8260	79-01-6	Trichloroethene	22
SW-846 6010	11-09-6	Uranium, Total	1
SW-846 6010	7440-62-2	Vanadium	28
SW-846 8260	75-01-4	Vinyl chloride	8
SW-846 8260	1330-20-7	Xylene	6
SW-846 6010	7440-66-6	Zinc	5

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Field Duplicate Evaluation

Field duplicate results reflect sampling precision, or overall repeatability of the sampling process. The frequency of field duplicate collection should exceed 1 field duplicate per 20 real samples, or 5 percent. Table 17 indicates that sampling frequencies were adequate.

Table 17
Field Duplicate Sample Frequency Summary

Test Method	Number of Real Samples	Number of Duplicate Samples	Percentage of Duplicate Samples
Alpha Spectroscopy	14	8	57.14%
Gamma Spectroscopy	73	10	13.70%
SW-846 6010	83	10	12.05%
SW-846 8260	58	8	13.79%
SW-846 8270	73	10	13.70%

Duplicate sample RPDs indicate how much variation exists in the field duplicate analyses; duplicate sample RPDs are provided in Table 18. The EPA data validation guidelines state that "there are no required review criteria for field duplicate analyses comparability" (EPA 1994b). For the DQA, the highest maximum RPDs (greater than 35 percent) are normally reviewed. All metal RPDs were greater than 35 percent except cadmium. However, except for the elevated arsenic, which was removed during accelerated action soil removal, metal results did not approach WRW ALs. For VOCs all maximum RPD values were below 35 percent except for 1,1,1-trichloroethane and methylene chloride, which were detected at maximum concentrations less than 1 percent of the WRW ALs. RPDs following SVOCs were greater than 35 percent: acenaphthene, anthracene, benzo(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysene, dibenz(a,h)anthracene, dibenzofuran, di-n-butylphthalate, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, naphthalene, phenanthrene, and pyrene. None of the maximum SVOC results approached WRW ALs except for benzo(a)pyrene. However, based on the SSRS, soil associated with this SVOC did not require action.

13.5 Completeness

Based on original program DQOs, a minimum of 25 percent of ER Program analytical results must be formally validated. Of that percentage, no more than 10 percent of the results may be rejected, which ensures that analytical laboratory practices are consistent with quality requirements. Table 19 presents the number and percentage of validated records (codes without "1"), verified records (codes with "1"), and rejected records for each analyte group. The evaluation of overall V&V completeness is based on program statistics that are not evaluated here. Because all results were either validated or verified (as shown in Table 19), and there were no rejections, the results are considered adequate for use in project decisions.

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Table 18
RPD Evaluation Summary

Lab Code	Test Method	Analyte	Max of Result RPD
ESTLDEN	SW-846 8260	1,1,1-Trichloroethane	59
ESTLDEN	SW-846 8260	1,1-Dichloroethane	7
ESTLDEN	SW-846 8260	1,2,4-Trichlorobenzene	7
ESTLDEN	SW-846 8270	1,2,4-Trichlorobenzene	8
ESTLDEN	SW-846 8260	1,2-Dichloroethane	7
ESTLDEN	SW-846 8270	2,4,5-Trichlorophenol	8
ESTLDEN	SW-846 8270	2,4,6-Trichlorophenol	8
ESTLDEN	SW-846 8270	2,4-Dichlorophenol	8
ESTLDEN	SW-846 8270	2,4-Dimethylphenol	8
ESTLDEN	SW-846 8270	2,4-Dinitrophenol	8
ESTLDEN	SW-846 8270	2-Chloronaphthalene	8
ESTLDEN	SW-846 8270	2-Chlorophenol	8
ESTLDEN	SW-846 8270	2-Methylnaphthalene	7
ESTLDEN	SW-846 8270	2-Methylphenol	8
ESTLDEN	SW-846 8270	2-Nitroaniline	8
ESTLDEN	SW-846 8270	3,3'-Dichlorobenzidine	14
ESTLDEN	SW-846 8270	4,6-Dinitro-2-methylphenol	8
ESTLDEN	SW-846 8270	4-Chloroaniline	14
ESTLDEN	SW-846 8260	4-Methyl-2-pentanone	9
ESTLDEN	SW-846 8270	4-Methylphenol	8
ESTLDEN	SW-846 8270	4-Nitrophenol	8
ESTLDEN	SW-846 8270	Acenaphthene	60
ESTLDEN	SW-846 6010	Aluminum	109
ESTLDEN	SW-846 8270	Anthracene	70
ESTLDEN	SW-846 6010	Arsenic	99
ESTLDEN	SW-846 6010	Barium	160
ESTLDEN	SW-846 8260	Benzene	7
ESTLDEN	SW-846 8270	Benzo(a)anthracene	131
ESTLDEN	SW-846 8270	Benzo(a)pyrene	105
ESTLDEN	SW-846 8270	Benzo(b)fluoranthene	72
ESTLDEN	SW-846 8270	Benzo(k)fluoranthene	129
ESTLDEN	SW-846 8270	Benzoic Acid	8
ESTLDEN	SW-846 8270	Benzyl Alcohol	14
ESTLDEN	SW-846 6010	Beryllium	108
ESTLDEN	SW-846 8270	bis(2-Chloroethyl)ether	8
ESTLDEN	SW-846 8270	bis(2-Chloroisopropyl)ether	8
ESTLDEN	SW-846 8270	bis(2-Ethylhexyl)phthalate	7
ESTLDEN	SW-846 8260	Bromodichloromethane	7
ESTLDEN	SW-846 8260	Bromoform	7
ESTLDEN	SW-846 8270	Butylbenzylphthalate	7
ESTLDEN	SW-846 6010	Cadmium	32
ESTLDEN	SW-846 8260	Carbon Disulfide	7

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Lab Code	Test Method	Analyte	Max of Result RPD
ESTLDEN	SW-846 8260	Chlorobenzene	7
ESTLDEN	SW-846 8260	Chloroform	7
ESTLDEN	SW-846 6010	Chromium	169
ESTLDEN	SW-846 8270	Chrysene	129
ESTLDEN	SW-846 8260	cis-1,3-Dichloropropene	7
ESTLDEN	SW-846 6010	Cobalt	122
ESTLDEN	SW-846 6010	Copper	152
ESTLDEN	SW-846 8270	Di-n-butylphthalate	146
ESTLDEN	SW-846 8270	Di-n-octylphthalate	8
ESTLDEN	SW-846 8270	Dibenz(a,h)anthracene	110
ESTLDEN	SW-846 8270	Dibenzofuran	97
ESTLDEN	SW-846 8260	Dibromochloromethane	7
ESTLDEN	SW-846 8270	Diethylphthalate	8
ESTLDEN	SW-846 8270	Dimethylphthalate	7
ESTLDEN	SW-846 8270	Fluoranthene	139
ESTLDEN	SW-846 8270	Fluorene	65
ESTLDEN	SW-846 8270	Hexachlorobenzene	8
ESTLDEN	SW-846 8270	Hexachlorobutadiene	8
ESTLDEN	SW-846 8270	Hexachlorocyclopentadiene	8
ESTLDEN	SW-846 8270	Hexachloroethane	8
ESTLDEN	SW-846 8270	Indeno(1,2,3-cd)pyrene	115
ESTLDEN	SW-846 6010	Iron	76
ESTLDEN	SW-846 8270	Isophorone	8
ESTLDEN	SW-846 6010	Lead	161
ESTLDEN	SW-846 6010	Lithium	53
ESTLDEN	SW-846 6010	Manganese	159
ESTLDEN	SW-846 6010	Mercury	114
ESTLDEN	SW-846 8260	Methylene chloride	87
ESTLDEN	SW-846 8270	n-Nitrosodiphenylamine	8
ESTLDEN	SW-846 8270	n-Nitrosodipropylamine	8
ESTLDEN	SW-846 8260	Naphthalene	7
ESTLDEN	SW-846 8270	Naphthalene	120
ESTLDEN	SW-846 6010	Nickel	164
ESTLDEN	SW-846 8270	Nitrobenzene	8
ESTLDEN	SW-846 8270	Pentachlorophenol	8
ESTLDEN	SW-846 8270	Phenol	8
ESTLDEN	SW-846 8270	Pyrene	105
ESTLDEN	SW-846 6010	Strontium	92
ESTLDEN	SW-846 8260	Styrene	7
ESTLDEN	SW-846 8260	Tetrachloroethene	7
ESTLDEN	SW-846 6010	Tin	61
ESTLDEN	SW-846 8260	Toluene	6
ESTLDEN	SW-846 8260	trans-1,3-Dichloropropene	6
ESTLDEN	SW-846 8260	Trichloroethene	7

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Lab Code	Test Method	Analyte	Max of Result RPD
ESTLDEN	SW-846 6010	Vanadium	79
ESTLDEN	SW-846 6010	Zinc	120

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Table 19
V&V Summary

Validation Qualifier Code	Total of CAS Number	Alpha Spec	Gamma Spectroscopy	SW-846 6010	SW-846 8260	SW-846 8270
I	1	0	0	1	0	0
J	101	0	0	101	0	0
J1	382	0	0	377	5	0
UI	1	0	0	0	1	0
UJ	74	0	0	31	43	0
UJ1	155	0	0	91	32	32
V	1961	40	48	220	821	832
V1	5794	30	171	1043	1618	2932
Total	8469	70	219	1864	2520	3796
Validated	2136	40	48	352	864	832
% Validated	25.22%	57.14%	21.92%	18.88%	34.29%	21.92%
Verified	6333	30	171	1512	1656	2964
% Verified	74.78%	42.86%	78.08%	81.12%	65.71%	78.08%

Validation qualifiers: J = Estimated, JB = Estimated with possible laboratory contamination, R = Rejected, UJ = Estimated detection limit, V = Validated
Verification qualifiers: J1 = Estimated, JB1 = Estimated with possible laboratory contamination, R1 = Rejected, UJ1 = Estimated detection limit, V1 = Verified

13.6 Sensitivity

RLs in µg/kg for organics, mg/kg for metals, and picocuries per gram (pCi/g) for radionuclides, were compared with the project WRW ALs. Adequate sensitivities of analytical methods were attained for all COCs that affect project decisions. "Adequate" sensitivity is defined as an RL that is less than the associated WRW AL, typically less than one-half the WRW AL.

13.7 Summary of Data Quality

LCS, surrogate, field blank, MS, MSD, RPDs, and field duplicate frequency results were acceptable or did not impact project decisions. Compliance with the project quality requirements and the RFETS V&V goal of 25 percent for all analytical records indicates these data are adequate.

14.0 CONCLUSIONS

Results of the accelerated action justify an NFAA determination for the IHSS Group 700-6. This justification is based on the following:

- The accelerated action activities conducted at the IHSS Group 700-6 sites were planned and conducted in accordance with the IASAP (DOE 2001) and the ER RSOP (DOE 2003a).
- Accelerated action characterization activities were conducted in accordance with the requirements set forth in IASAP Addendum #IA-03-18 (DOE 2003b), which was approved by CDPHE in a letter dated October 31, 2003 (CDPHE 2003).

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- Accelerated action soil removal and confirmation sampling were conducted in accordance with ER RSOP Notification #04-17 (DOE 2004a), which was approved by CDPHE in a letter dated July 27, 2004 (CDPHE 2004). Based on the DQA, IHSS Group 700-6 accelerated action characterization and confirmation sampling data are adequate for decision making.
- Two small areas of surface soil were excavated because they contained arsenic concentrations more than three times the WRW AL. The excavations were backfilled. All metal concentrations in confirmation samples were less than WRW ALs, except arsenic which was detected at a single sampling location (CG47-052) at a concentration of 29 mg/kg, slightly greater than the WRW AL of 22.2 mg/kg. Arsenic concentrations greater than the WRW AL were not detected in soil collected from the same interval (0 to 0.5 ft bgs) at any of the confirmation or unremediated characterization sampling locations in the vicinity of CG47-052. Of the three confirmation samples, one (CG47-051) had no arsenic concentrations above the BGM+2SDs of 10.090 mg/kg, and the remaining two (CG47-053 and CG47-050) had concentrations of 14 and 19 mg/kg, respectively. Of the two characterization samples, one had no arsenic concentrations above the BGM+2SDs (CH47-009), and one had a concentration of 18 mg/kg (CH47-007). Arsenic concentrations in subsurface samples collected from these two sampling locations were less than BGM+2SDs and 15 mg/kg, respectively.
- Residual contaminant concentrations greater than WRW ALs are limited to three analytes (arsenic, benzo(a)pyrene, and chromium) and soil at seven characterization sampling locations and one confirmation sampling location. Arsenic concentrations greater than the WRW AL remain in surface (0 to 0.5 ft bgs) and subsurface (1 ft bgs) soil, chromium in subsurface (0.5-0.8 ft bgs) soil, and benzo(a)pyrene in surface (0-0.5 ft bgs) and subsurface (0.5-2.5 ft bgs and 8-8.5 ft bgs) soil. Based on application of the hot spot methodology and SSRS, soil at the seven locations does not require action.
- Based on the SSRS and stewardship evaluation, no additional accelerated actions are required. However, the following near- and long-term management actions include access to sites will be restricted, soil excavation will be controlled, and groundwater pumping will be prohibited. Additional environmental engineering or monitoring activities are not required or recommended for soil at the IHSS Group 700-6 sites.
- The ER RSOP RAOs and accelerated action goals were achieved.

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15.0 REFERENCES

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APPENDIX A
CORRESPONDENCE

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ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
ER REGULATORY CONTACT RECORD

Date/Time: July 30, 2004/0740

Site Contact(s): Annette Primrose
Phone: 303 966-4385

Regulatory Contact: Harlen Ainscough
Phone: 303 692-3337
Agency: CDPHE

Purpose of Contact: Backfill of 700-6 hot spots

Discussion

Two shallow areas require remediation for arsenic in IHSS Group 700-6. As per the ER RSOP Notification, these will be remediated in an area 3 feet square and 6" deep. Confirmation samples will be collected from the bottom and sidewalls of the excavation and analyzed for metals. The onsite lab cannot effectively analyze for arsenic and the turnaround time for offsite metals results is approximately 2 weeks. Therefore, the excavation boundaries will be surveyed and the excavation backfilled. The area will then be immediately available as a staging area for the IHSS 118.1/B730 project.

If additional remediation is required based on the sample results, then the area will be re-excavated.

Contact Record Prepared By: Annette Primrose

Required Distribution:

M. Aguilar, USEPA
H. Ainscough, CDPHE
S. Bell, DOE-RFPO
J. Berardini, K-H
B. Birk, DOE-RFPO
L. Brooks, K-H ESS
L. Butler, K-H RISS
G. Carnival, K-H RISS
N. Castaneda, DOE-RFPO
C. Deck, K-H Legal
N. Demos, SSOC
S. Gunderson, CDPHE
M. Keating, K-H RISS
D. Kruchek, CDPHE
J. Legare, DOE-RFPO
D. Mayo, K-H RISS
J. Mead, K-H ESS
S. Nesta, K-H RISS
L. Norland, K-H RISS
K. North, K-H ESS
E. Pottorff, CDPHE
A. Primrose, K-H RISS
R. Schassburger, DOE-RFPO
S. Serreze, K-H RISS
D. Shelton, K-H ESS
C. Spreng, CDPHE
S. Surovchak, DOE-RFPO
J. Walstrom, K-H RISS
K. Wiemelt, K-H RISS
C. Zahm, K-H Legal

Additional Distribution:

Sam Garcia, USEPA
Beth Loehrke, K-H RISS

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ROCKY FLATS ENVIRONMENTAL TECHNOLOGY SITE
ER REGULATORY CONTACT RECORD

Date/Time:	6-10-04	
Site Contact(s):	Annette Primrose	Norma Castaneda
Phone:	303 966-4385	303 966-4226
Regulatory Contact:	Dave Kruchek	
Phone:	303 692-3328	
Agency:	CDPHE	

Purpose of Contact: Backfill of 700-6 excavation

Discussion

Radiological and VOC preliminary data were received for the samples collected within the excavation caused by the removal of the B712 structure. All results are well below action levels.

The excavated area is filling with water as a result of groundwater and recent precipitation. To stabilize the area, the excavation will be backfilled at this time rather than waiting for the metals and semivolatile analyses.

If these outstanding results show that a remedial action is required, then the area will be re-excavated.

Contact Record Prepared By: Annette Primrose

Required Distribution:

M. Aguilar, USEPA
H. Ainscough, CDPHE
S. Bell, DOE-RFPO
J. Berardini, K-H
B. Birk, DOE-RFPO
L. Brooks, K-H ESS
L. Butler, K-H RISS
G. Carnival, K-H RISS
N. Castaneda, DOE-RFPO
C. Deck, K-H Legal
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S. Gunderson, CDPHE
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G. Kleeman, USEPA
D. Kruchek, CDPHE
J. Legare, DOE-RFPO
D. Mayo, K-H RISS
J. Mead, K-H ESS
S. Nesta, K-H RISS
L. Norland, K-H RISS
K. North, K-H ESS
E. Pottorff, CDPHE
A. Primrose, K-H RISS
R. Schassburger, DOE-RFPO
S. Serreze, K-H RISS
D. Shelton, K-H ESS
C. Spreng, CDPHE
S. Surovchak, DOE-RFPO
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Additional Distribution:

Beth Loehrke, K-H RISS
Sherry Lopez, K-H RISS
Dave Chojnacki, K-H RISS

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APPENDIX B
PROJECT PHOTOGRAPHS

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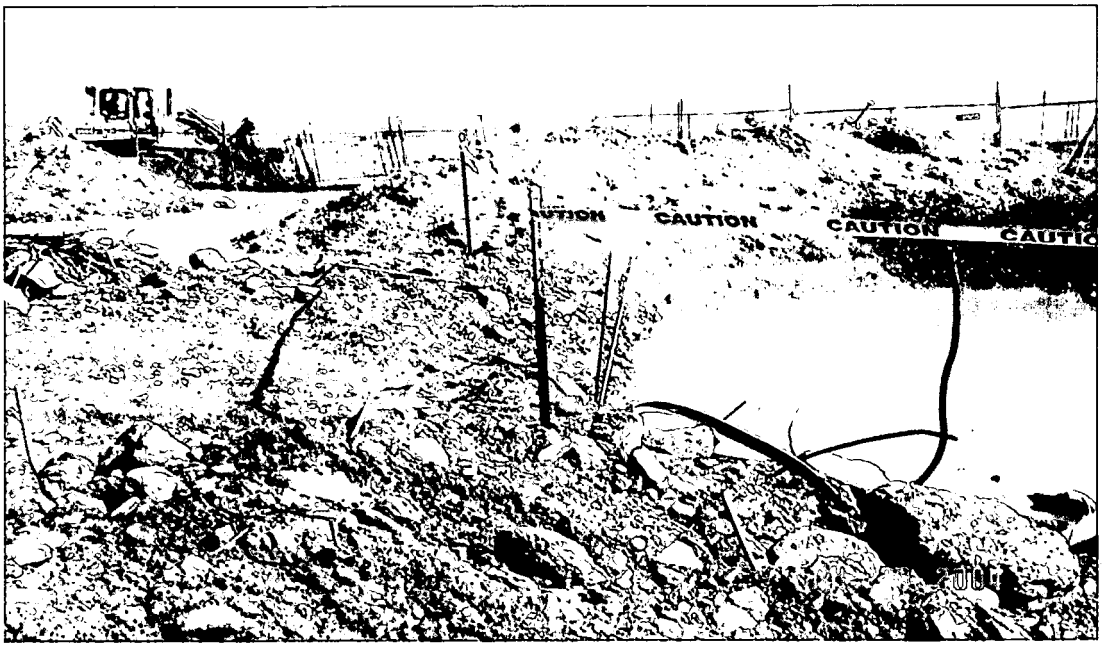
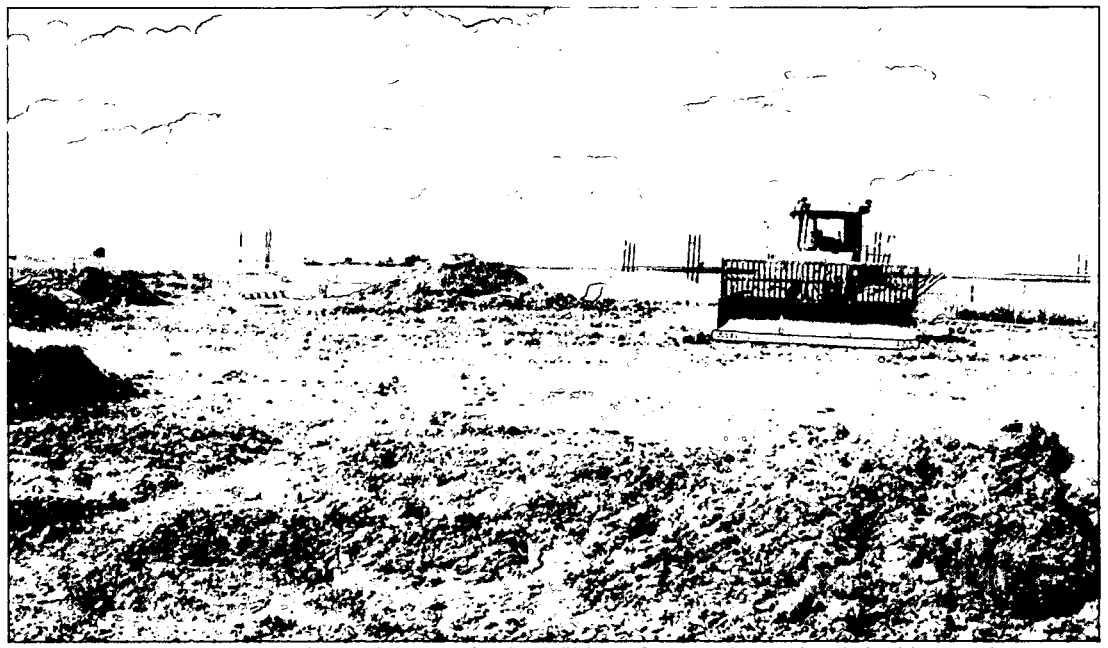


Photograph of sampling location SS801993 prior to excavation. View is looking north. The water-filled depression to the east is the Valve Pit 713A excavation.

Photograph of sampling location SS801993 after excavation. View is looking south. The water-filled depression is the Valve Pit 713A excavation.

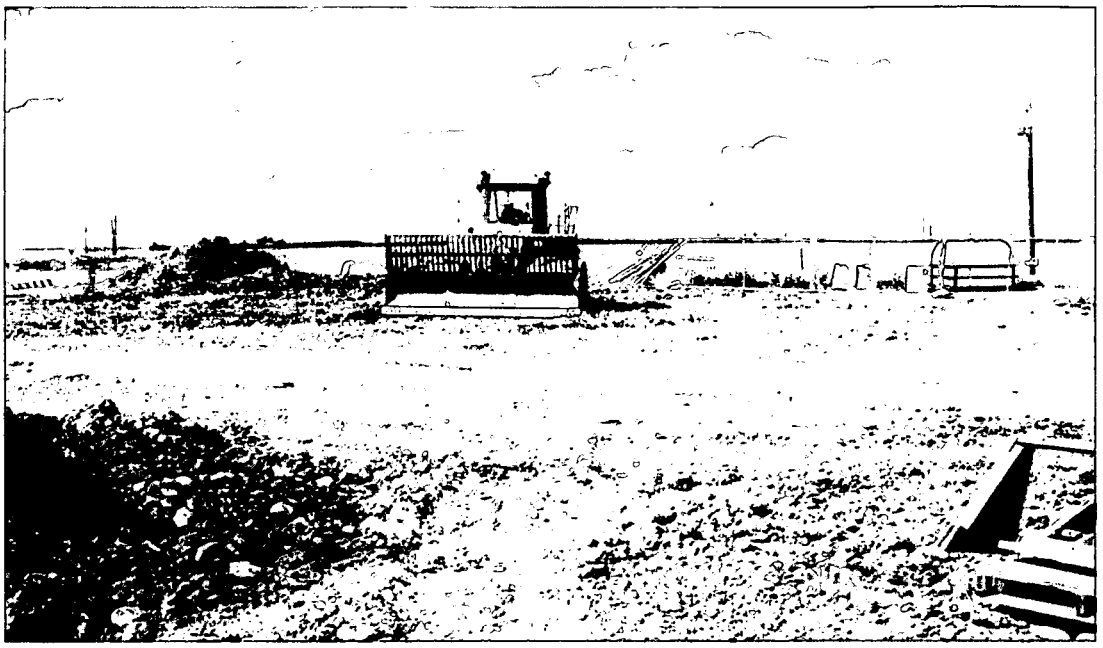


Photograph of sampling location SS801993 after backfilling of excavation. View is looking north.

Photograph of sampling location CG47-025 prior to excavation. View is looking north-northwest. The water-filled depression south of the survey stakes is the Building 713 excavation.

Photograph of sampling location CG47-025 after excavation. View is looking northwest. The water-filled depression is the Building 713 excavation.

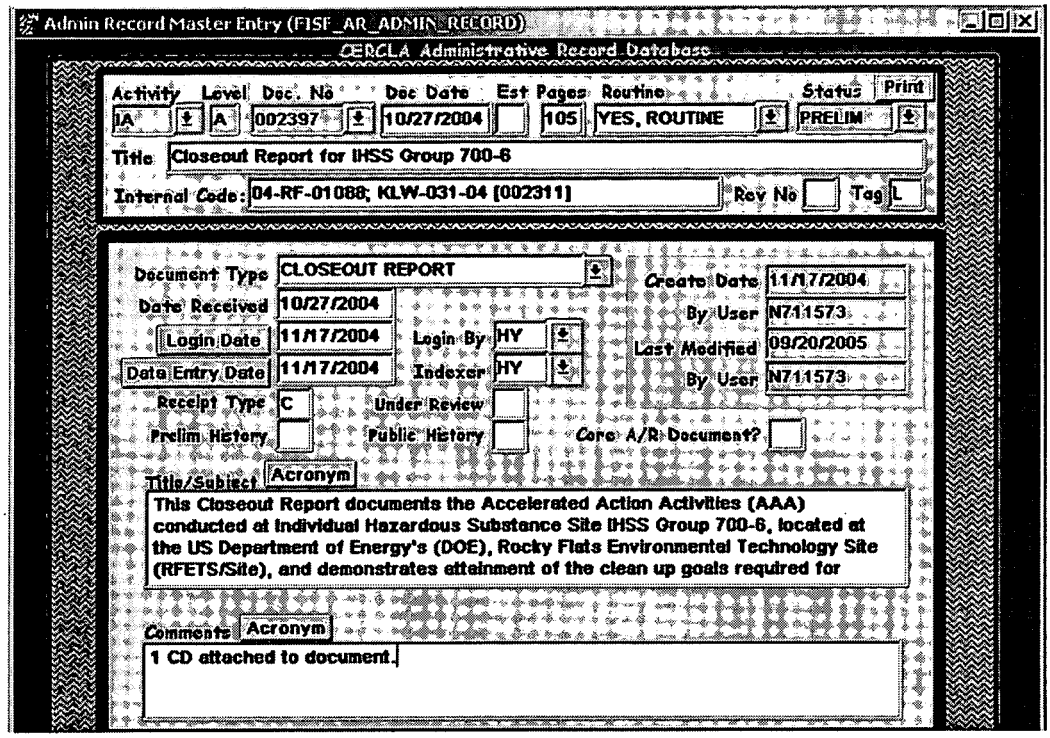
Photograph of sampling location CG47-025 after excavation. View is looking north-northwest. The water-filled depression is the Building 713 excavation.



Photograph of sampling location SS801993 after backfilling of excavation. View is looking north.

COMPACT DISC
ACCELERATED ACTION DATA

105/105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PRELIM
Title
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Internal Code:
04-RF-01088; KLW-031-04 [002311]
Rev No
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Document Type
CLOSEOUT REPORT
Create Date
11/17/2004
Date Received
10/27/2004
By User
N711573
Login Date
11/17/2004
Login By
HY
Last Modified
09/20/2005
Data Entry Date
11/17/2004
Indexer
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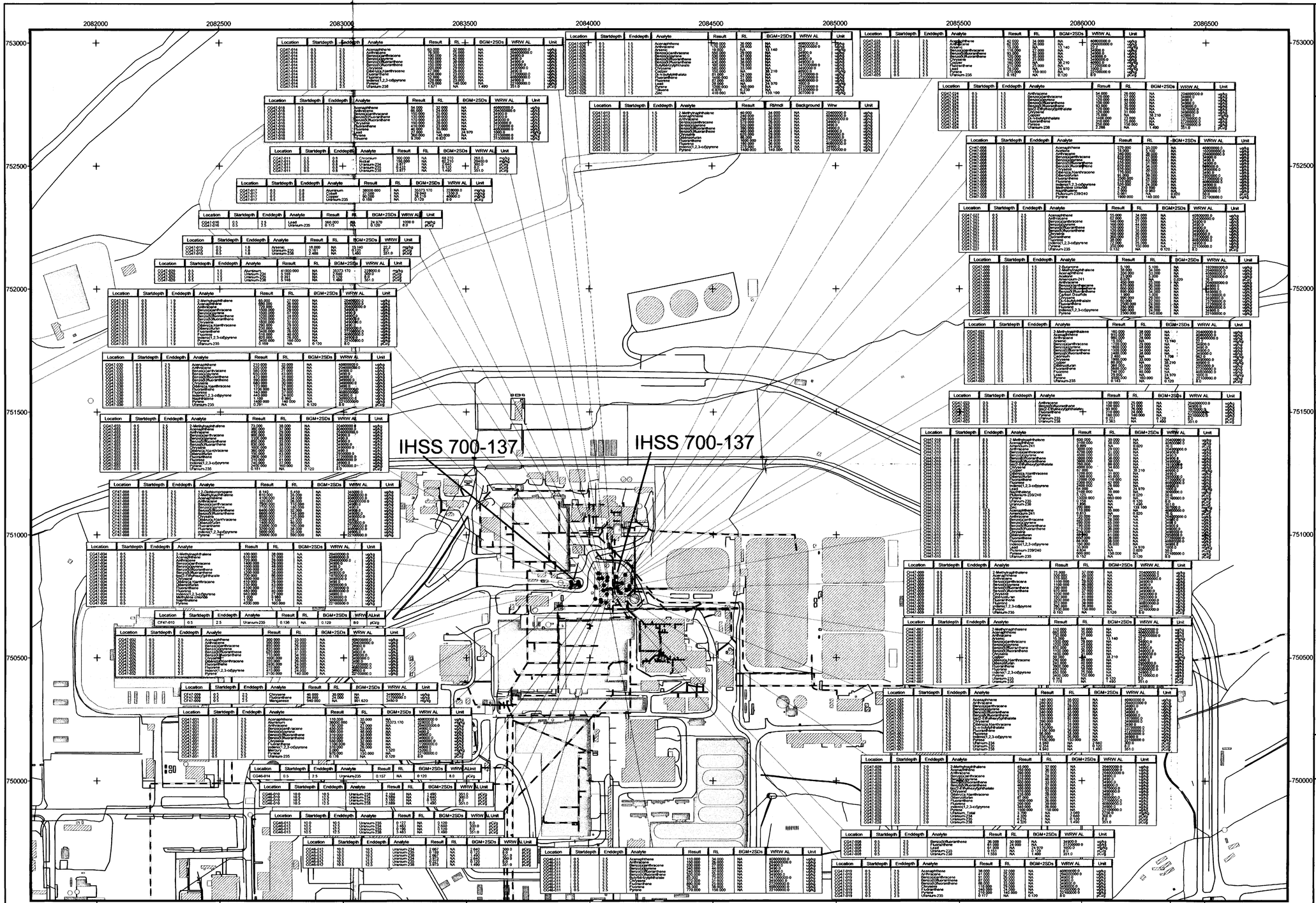
By User
N711573
Receipt Type
C
Under Review
Prelim History
Public History
Core A/R Document?
Title/Subject
Acronym
This Closeout Report documents the Accelerated Action Activities (AAA) conducted at Individual Hazardous Substance Site IHSS Group 700-6, located at the US Department of Energy's (DOE), Rocky Flats Environmental Technology Site (RFETS/Site), and demonstrates attainment of the clean up goals required for
Comments
Acronym
1 CD attached to document.

Figure 5
IHSS Group 700-6
Accelerated Action Characterization
Subsurface Soil Data Greater than RLs or BGM+2SDs



KEY

- Greater than WRW AL
- Greater than RL or BGM+2SD

IHSS
PAC
Standing building
Demolished building
Tank

Stream
Paved road
NPWL
OPWL

N

Scale = 1: 2,500

300 0 300 Feet

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: RADMS

Prepared for: KAISER•HILL COMPANY

Date: 10.20.2004

File: W:\Projects\Fy2004\700-6\700-6_closeout_av\
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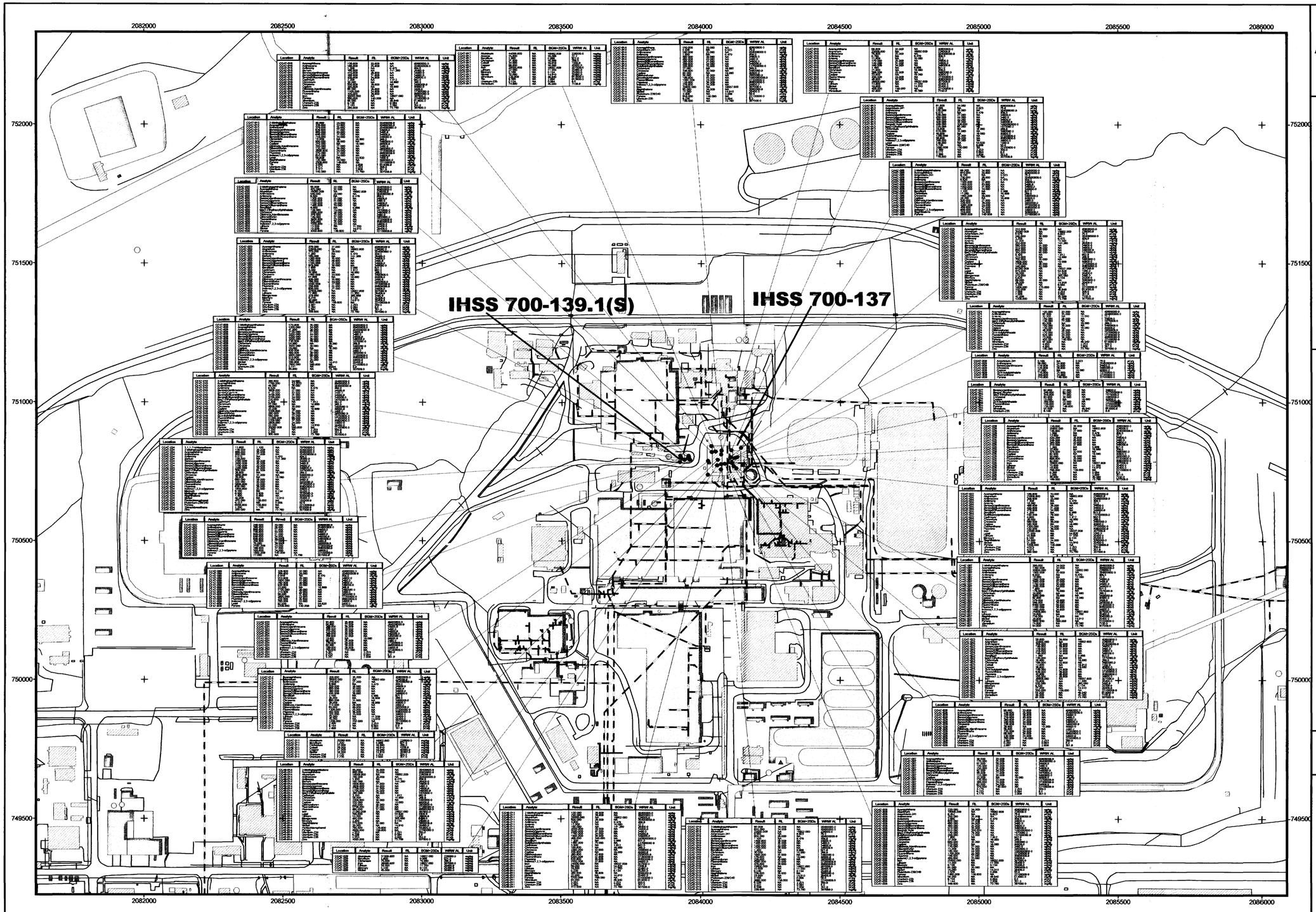


Figure 4
IHSS Group 700-6
Accelerated Action Characterization
Surface Soil Data Greater than
RLs or BGM+2SDs

KEY

- Greater than WRW AL
- Greater than RL or BGM+2SD

IHSS Group 700-6
PAC
Standing building
Demolished building
Tank
Stream
Paved road
NPWL
OPWL

N

Scale = 1: 2,200

300 0 300 Feet

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

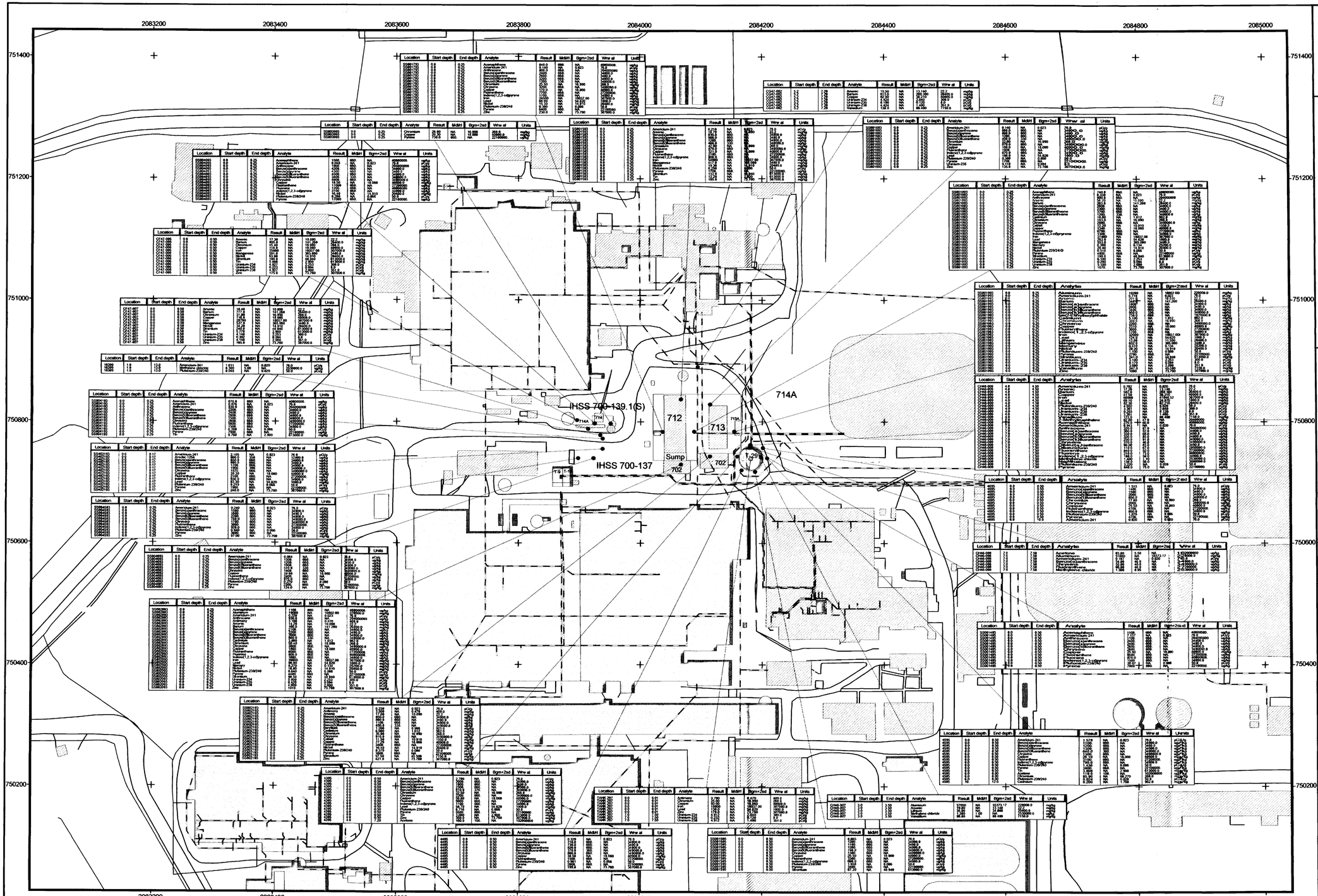
Prepared by: RADMS

Prepared for: KAISER•HILL COMPANY

Date: 10.20.2004

File: W:\Projects\Fy2004\700-6\700-6_closeout_av\
700-6_finalcr_10-14-04.apr

Figure 3
IHSS Group 700-6
Historical Soil Data Greater than MDLs/RLs or BGM+2SDs



KEY

- Greater than WRW AL
- Greater than MDL/RL or BGM+2SD

IHSS
PAC
Standing building
Demolished building
Tank
Stream
Paved road
NPWL
OPWL

N

Scale = 1: 1,000

100 0 100 Feet

State Plane Coordinate Projection
Colorado Central Zone
Datum: NAD 27

U.S. Department of Energy
Rocky Flats Environmental Technology Site

Prepared by: RADMS

Prepared for: KAISER•HILL COMPANY

Date: 10.14.04

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700-6_finalcr_10-14-04.apr